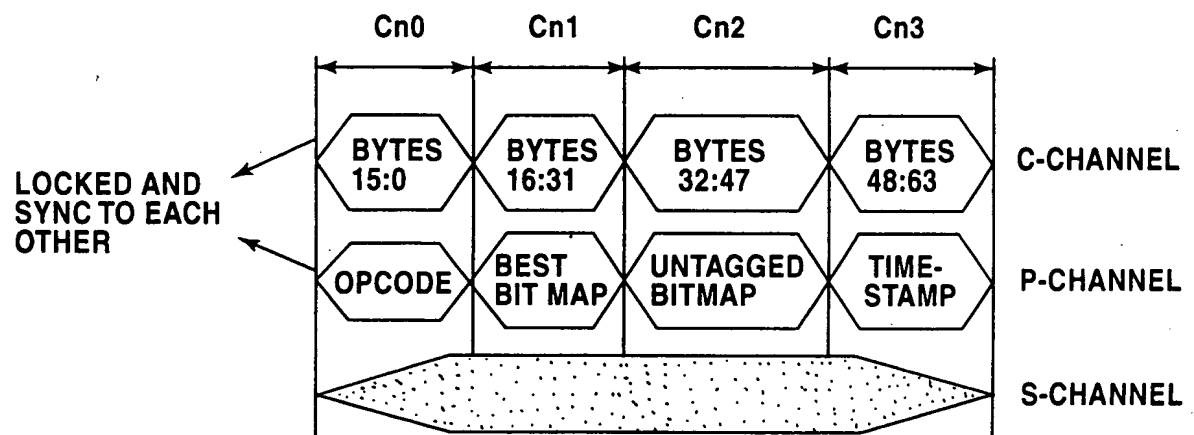






**Fig.3**





# Fig.5

## PROTOCOL CHANNEL MESSAGES

30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0
OPC ODE	IP IPX	RESE RVED	NXT CELL	SRC DEST PORT			COS		J	S	E	CRC	P	O	LEN

62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32
MODULE ID BITMAP															

30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0
R	Bc / Mc PORTBITMAP														

62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32
PF M	NEW IP CHECKSUM								M	MT-MOD ID		T	TGID		MOD OPCODE

30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0
U	UNTAGGED PORTBITMAP / SRC PORT NUMBER (bit0...5)														

62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32
RSVD		MATCHED FILTER		VLAN ID						SRC PORT			REMOTE PORT		

30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0
CPU OPCODES									TIME STAMP						

62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32
R	L3 PORT BITMAP														

00000000000000000000000000000000

[illegible]

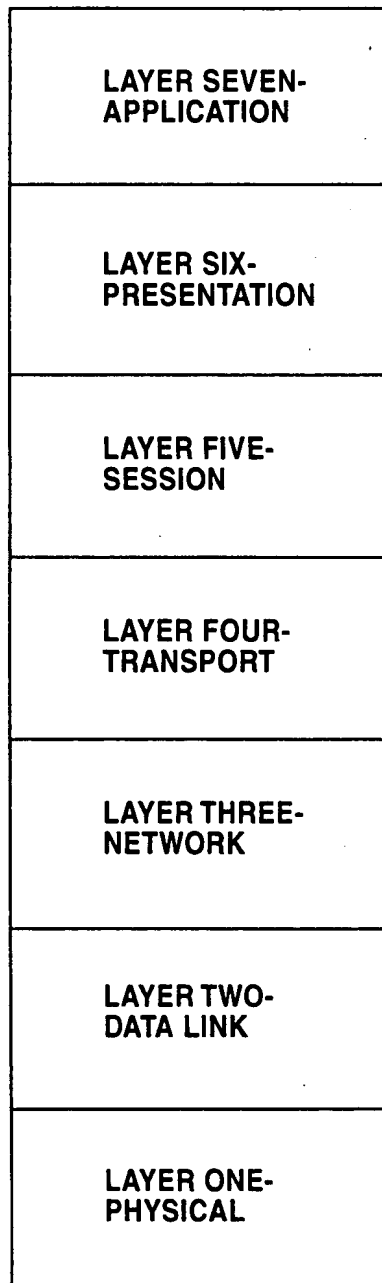
**Fig.6**

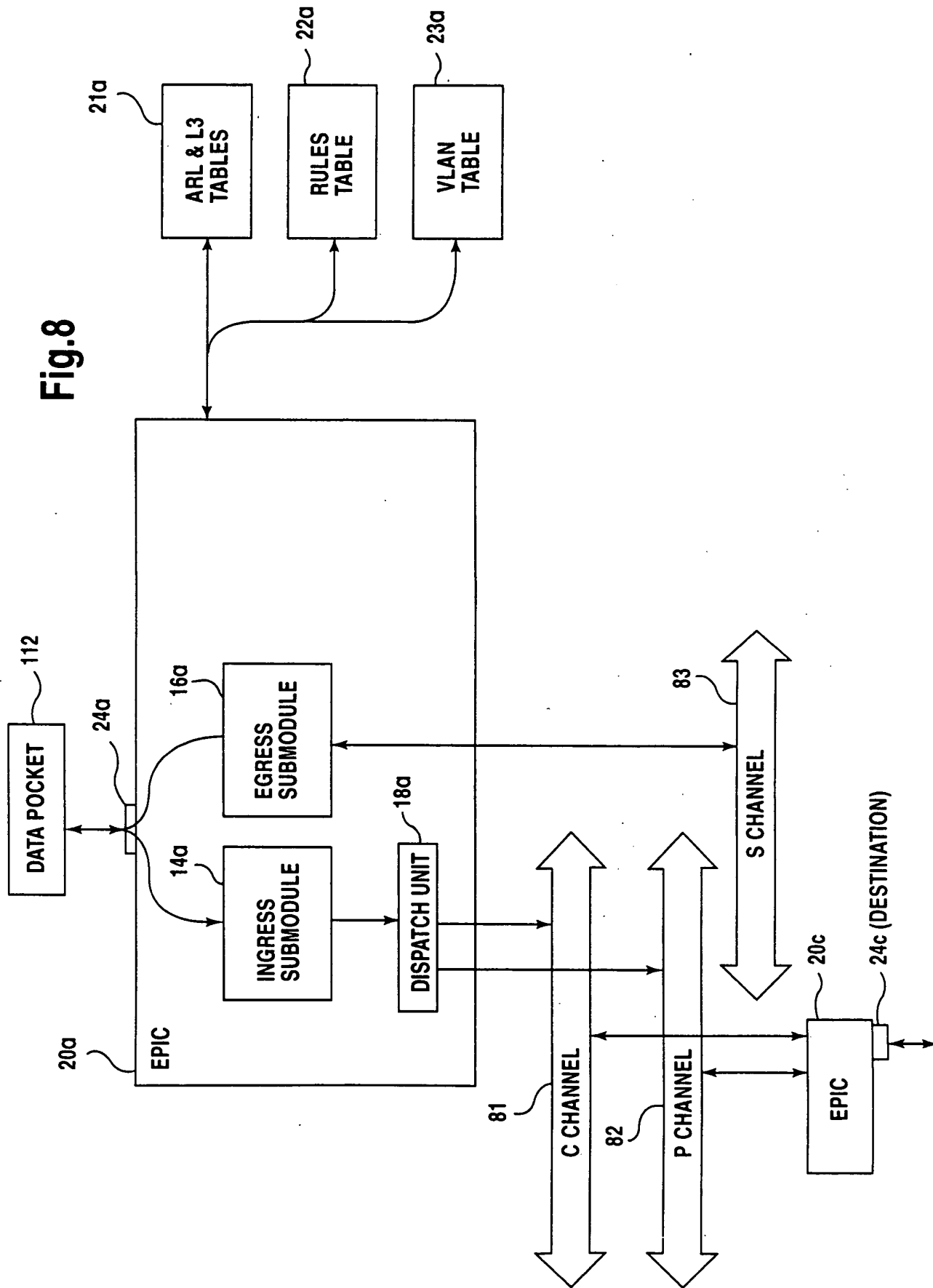
## SIDE BAND CHANNEL MESSAGES

30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0	
OPCODE			DEST PORT / DESTINATION DEV ID			SRC PORT			DATA LEN				E	EC ODE	COS	C
ADDRESS																
DATA																

090933 4400

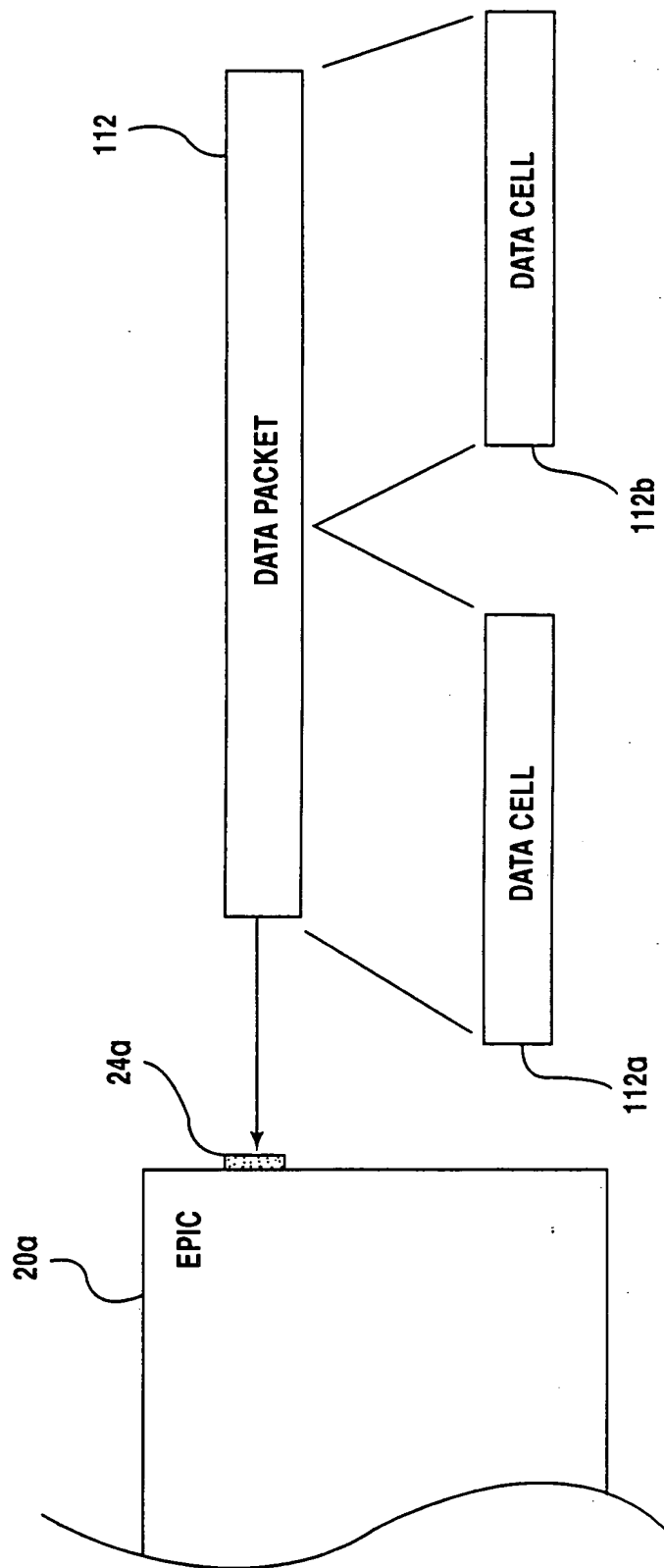
**Fig.7**  
**PRIOR ART**







**Fig. 9**



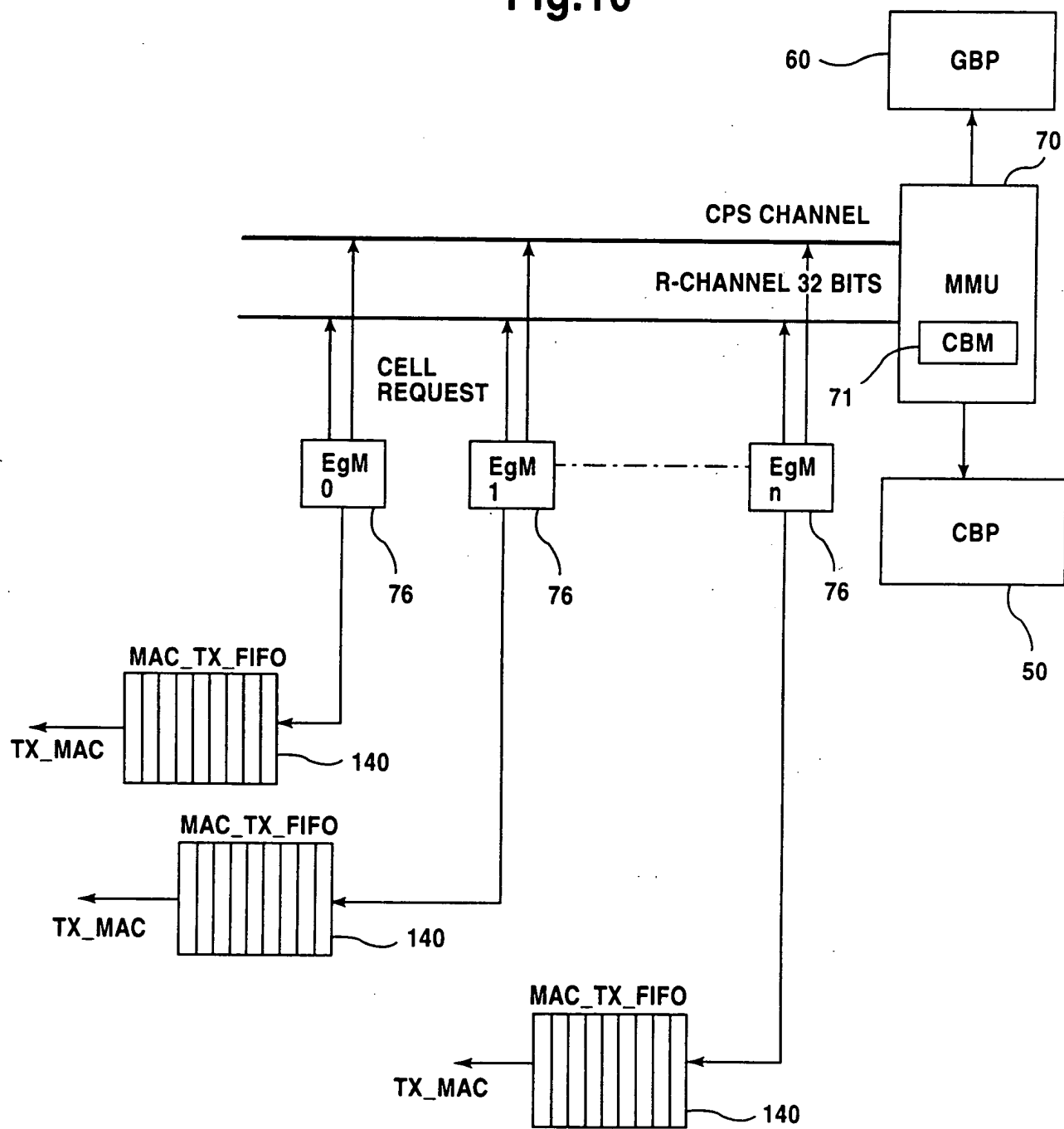
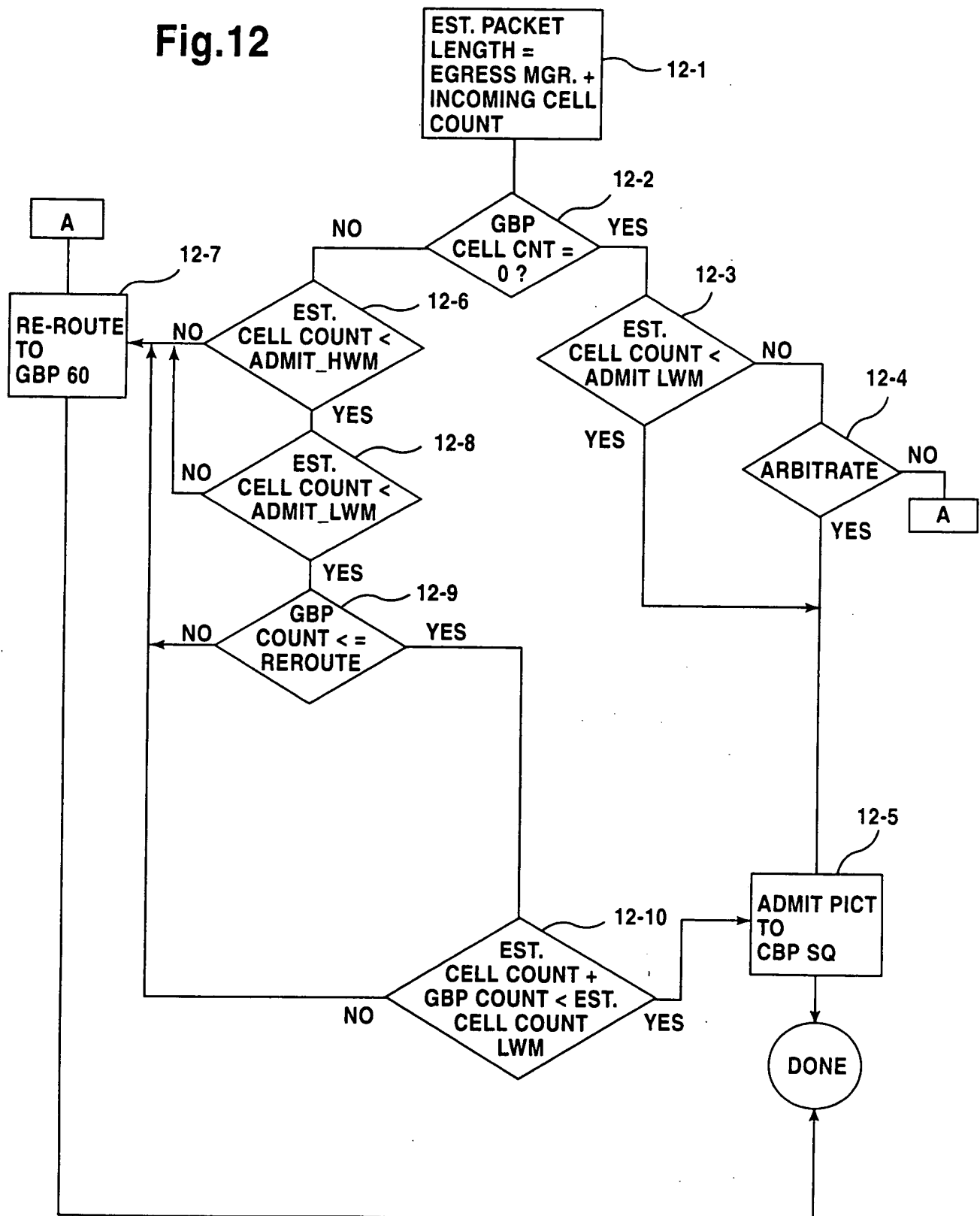


Fig.11

LINE 0 →	FC   LC   BC/MC   Cpy_cnt (5b)   Cell_length (7b)   CRC (2b)   NC_header (16b)   Src Count (6)   IPX   IP     Time_Stamp (14b)   O bits (2b)   P   NextCellLen (2b)   CpuOpcode (4b)   Cell_data (0-9B)
LINE 1 →	Cell_data (10-27) Bytes
LINE 2 →	Cell_data (28-45) Bytes
LINE 3 →	Cell_data (46-63) Bytes

**Fig.12**



**THE UNIVERSITY OF CHICAGO**

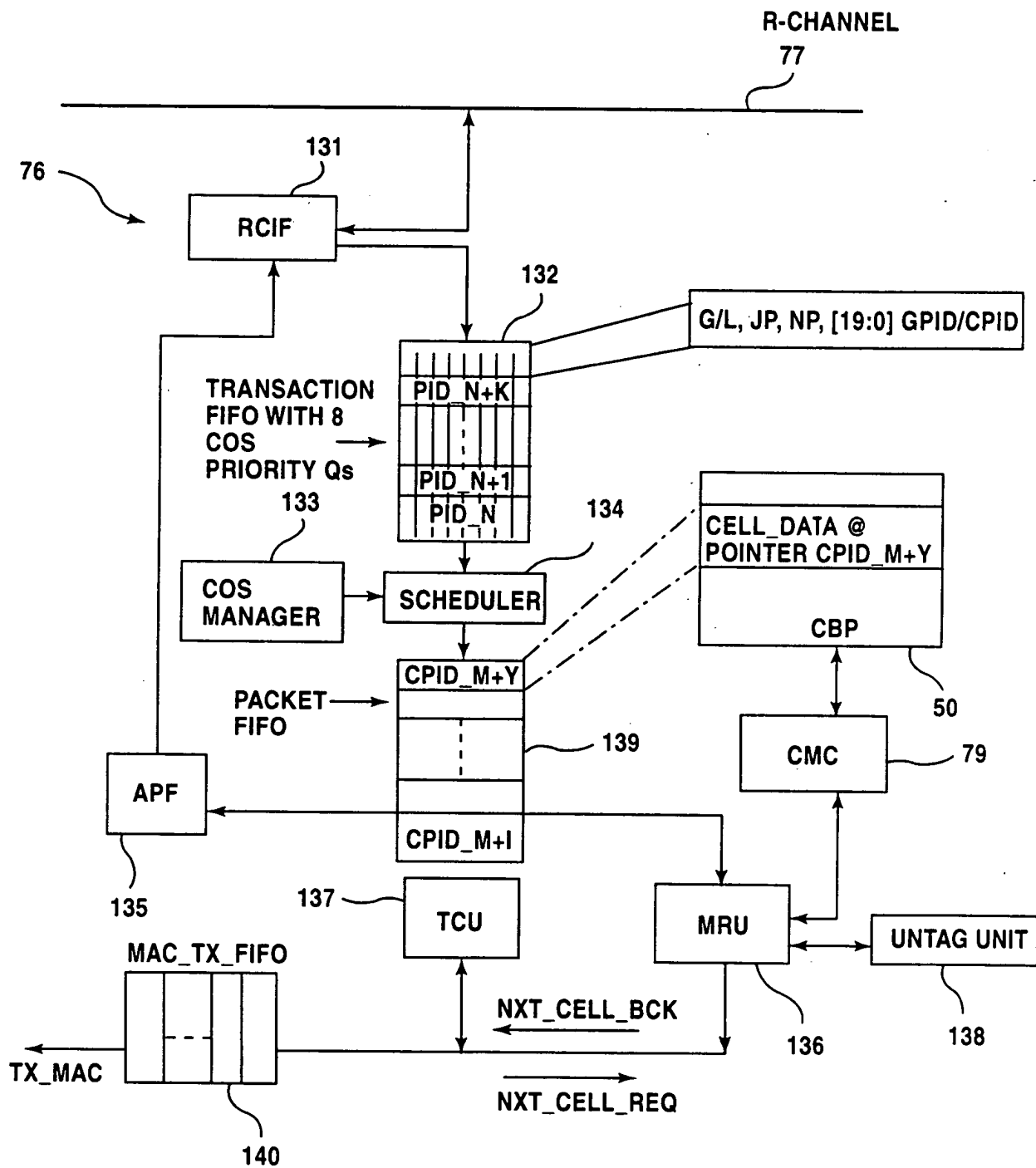
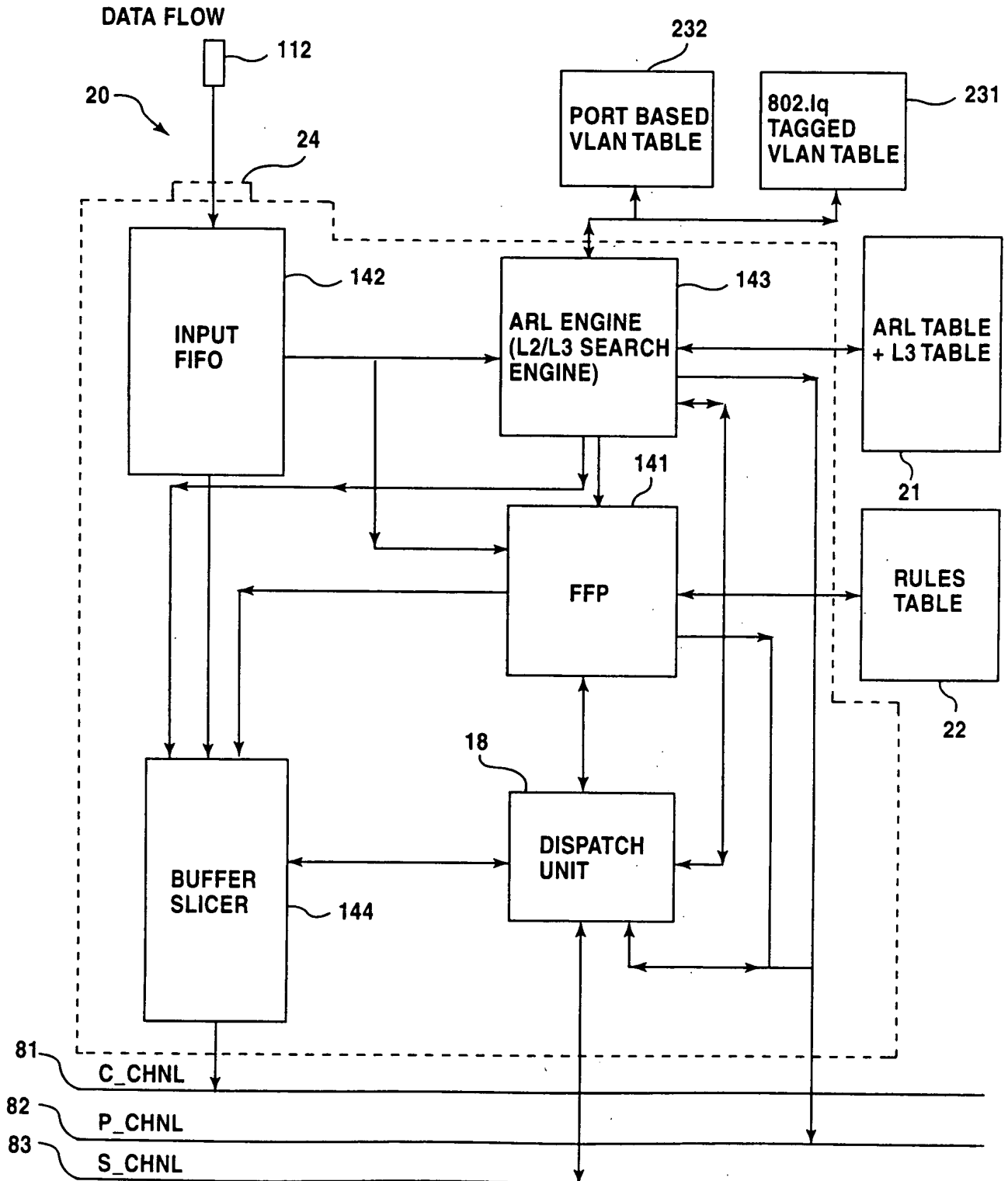
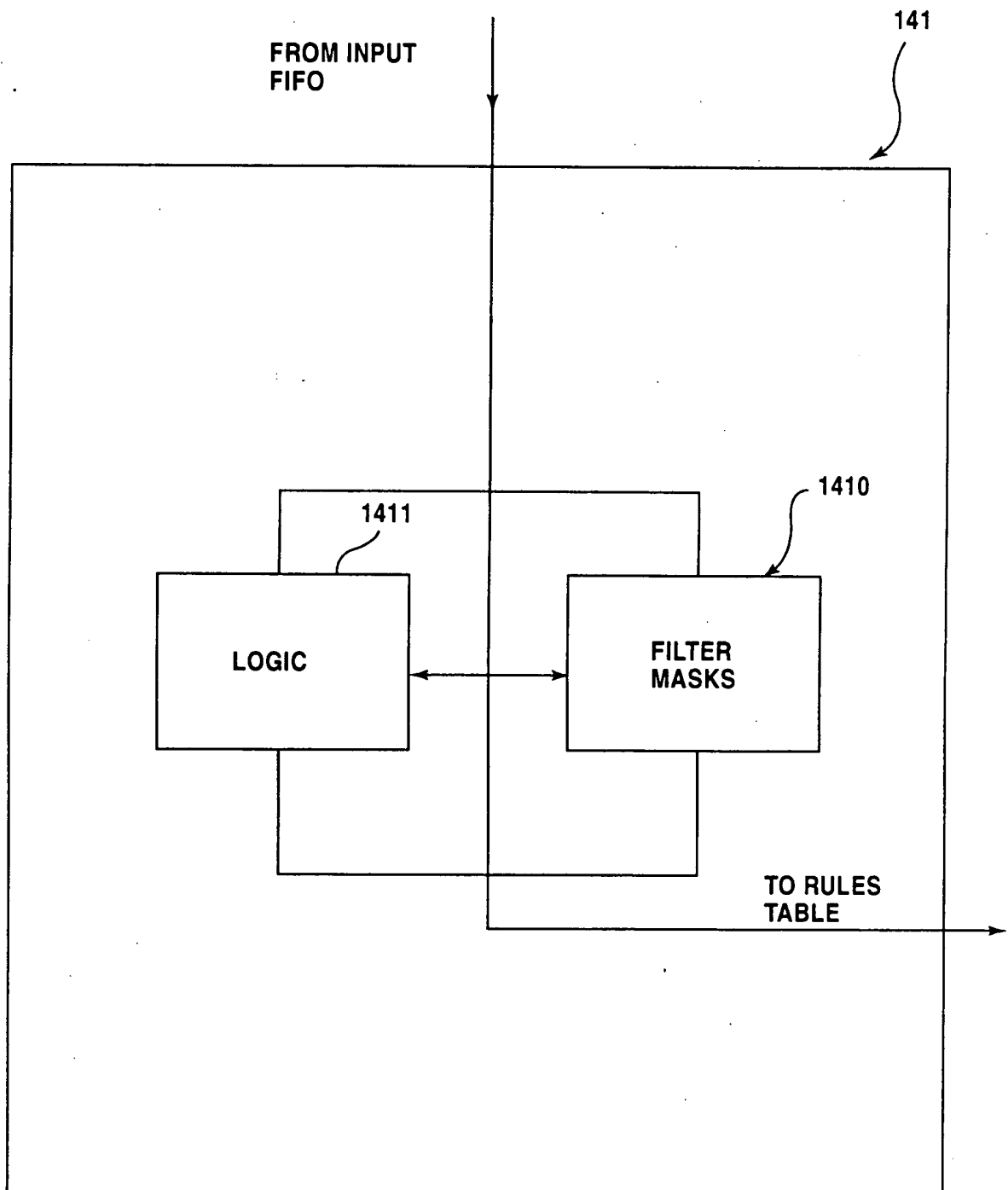
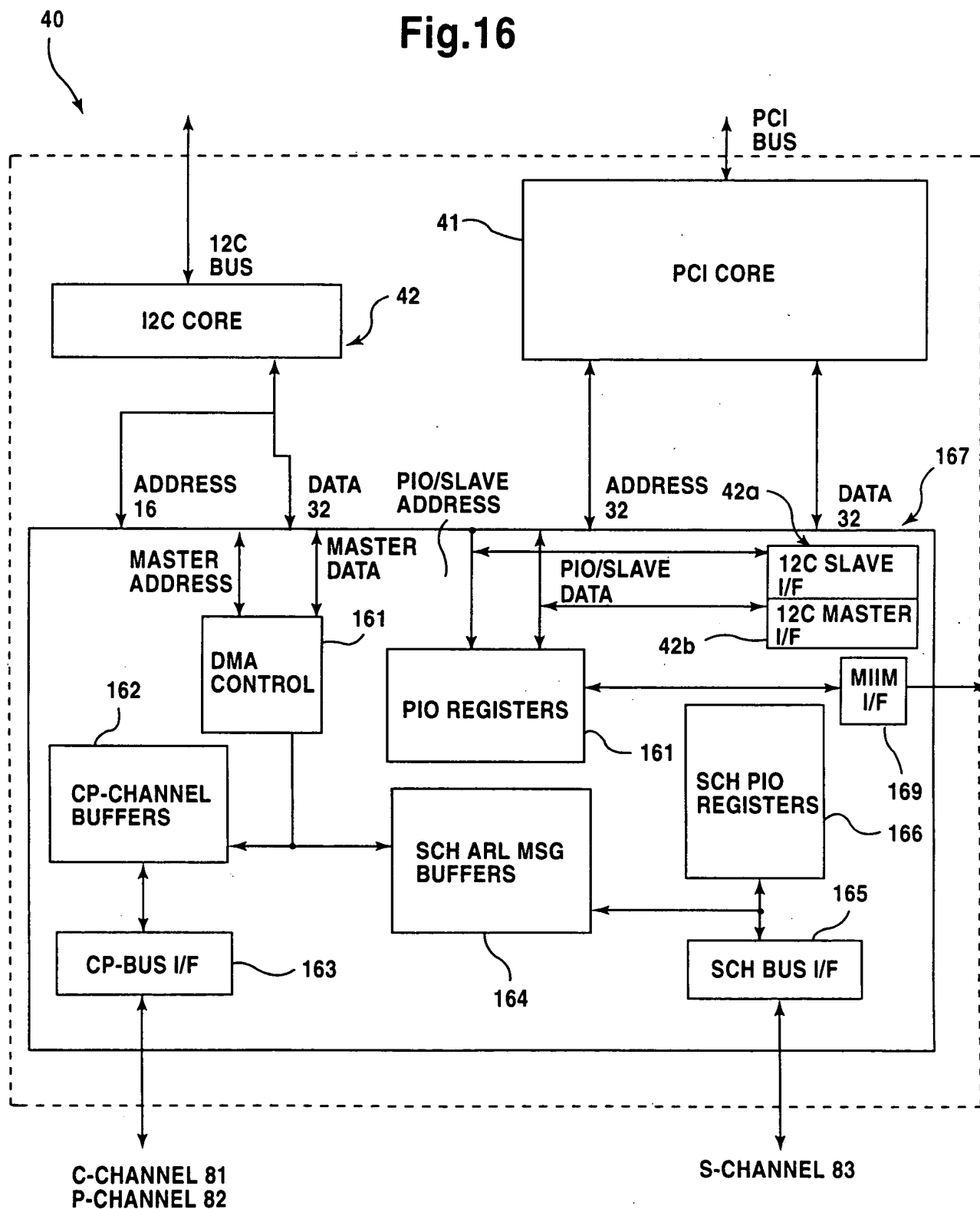


Fig.14



**Fig.15**

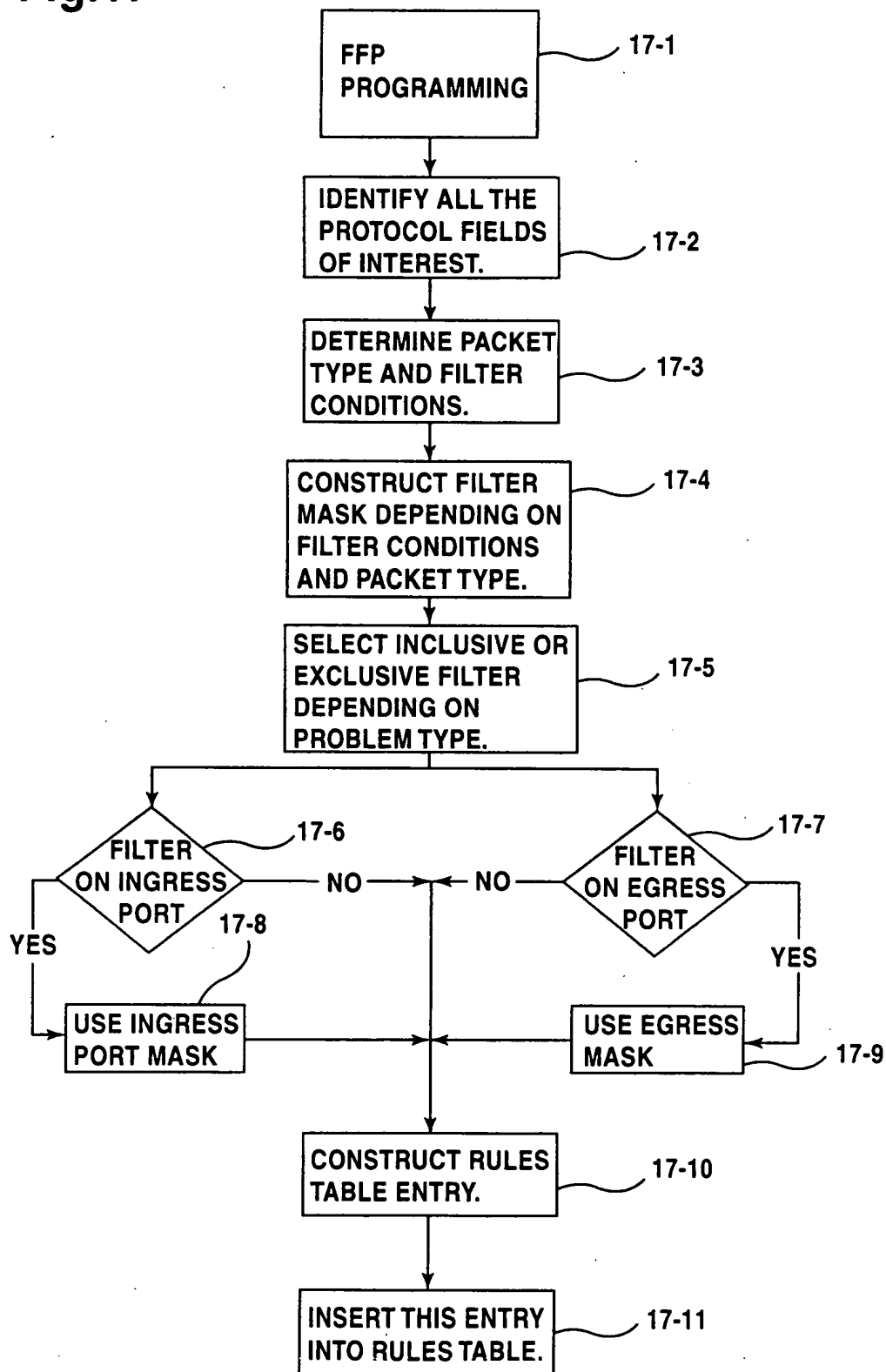






**Fig.17**

## FFP PROGRAMMING FLOW CHART



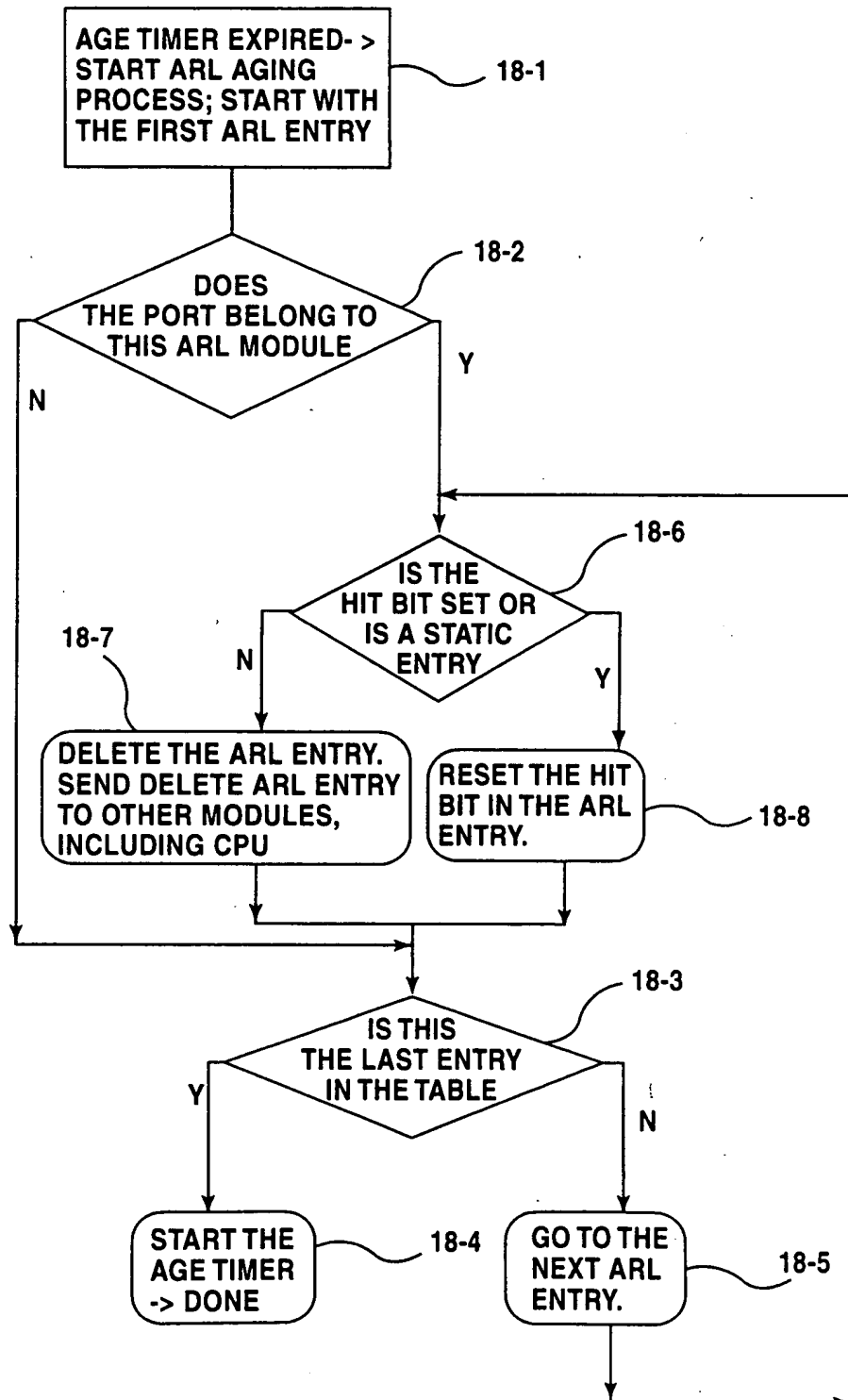
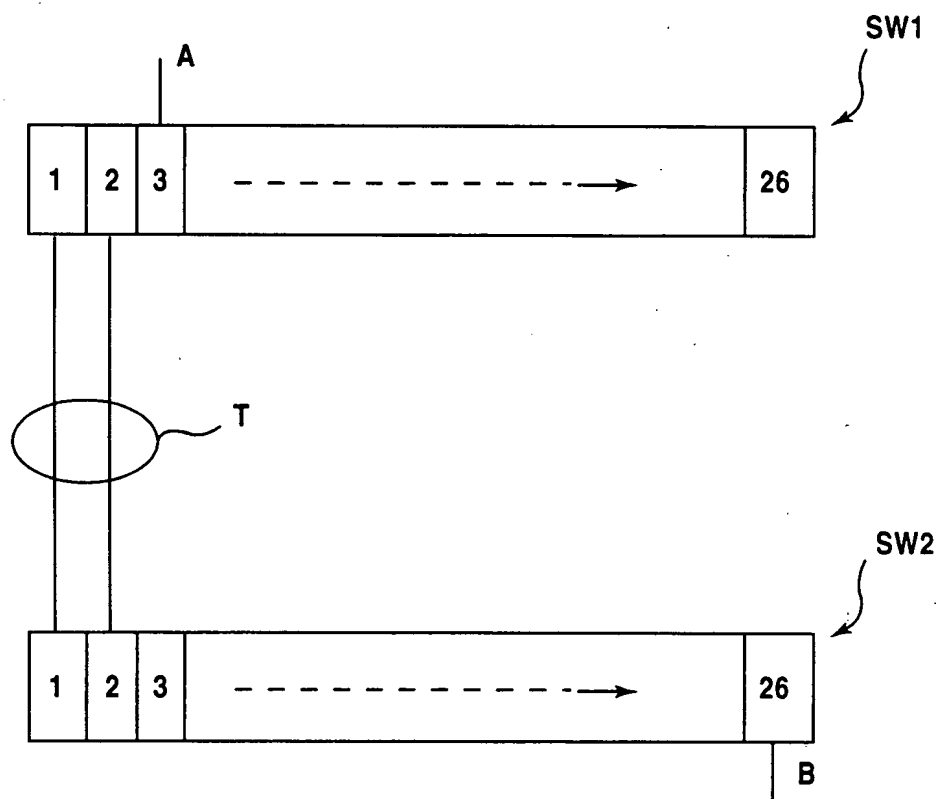
[illegible]

Fig.19



# Fig.20

FIELD	HEADER	SIZE	OFFSET FOR ETHERNET II UNTAGGED	OFFSET FOR ETHERNET II TAGGED	OFFSET FOR SNAP UNTAGGED	OFFSET FOR SNAP TAGGED
DESTINATION MAC ADDRESS	MAC	6 BYTES	0	0	0	0
SOURCE MAC ADDRESS	MAC	6 BYTES	6	6	6	6
PROTOCOL TYPE	MAC	2 BYTES	12	16	20	24
DESTINATION TYPE	802.3	1 BYTE	NA	NA	14	18
SOURCE SAP	802.3	1 BYTE	NA	NA	15	19
802.1p PRIORITY	MAC	3 BITS	NA	14	NA	14
VLAN Id	MAC	12 BITS	NA	14+14b	NA	14+14b
TOS PRECEDENCE	IP	3 BITS	15	19	23	27
DIFFERENTIATED SERVICES	IP	6 BITS	15	19	23	27
SOURCE IP ADDRESS	IP	4 BYTES	26	30	34	38
DESTINATION IP ADDRESS	IP	4 BYTES	30	34	38	42
PROTOCOL	IP	1 BYTE	23	27	31	35
SOURCE PORT	TCP/ UDP	2 BYTES	34	38	42	46
DESTINATION PORT	TCP/ UDP	2 BYTES	36	40	44	48
TCP CONTROL FLAGS (FOR ALIGNING ON BYTE BOUNDARY 2 BITS OF RESERVED BITS PRECEDING THIS FIELD IS INCLUDED)	TCP	1 BYTE	47	51	55	59
DATA AT OFFSET 1	NA	8 BYTES	DATA OFFSET1 FROM START OF IP/IPX HEADER	DATA OFFSET1 FROM START OF IP/IPX HEADER	DATA OFFSET1 FROM START OF IP/IPX HEADER	DATA OFFSET1 FROM START OF IP/IPX HEADER
DATA AT OFFSET 2	NA	8 BYTES	DATA OFFSET2 FROM START OF IP/IPX HEADER	DATA OFFSET2 FROM START OF IP/IPX HEADER	DATA OFFSET2 FROM START OF IP/IPX HEADER	DATA OFFSET2 FROM START OF IP/IPX HEADER
DATA AT OFFSET 3	NA	8 BYTES	DATA OFFSET3 FROM START OF IP/IPX HEADER	DATA OFFSET3 FROM START OF IP/IPX HEADER	DATA OFFSET3 FROM START OF IP/IPX HEADER	DATA OFFSET3 FROM START OF IP/IPX HEADER
DATA AT OFFSET 4	NA	8 BYTES	DATA OFFSET4 FROM START OF IP/IPX HEADER	DATA OFFSET4 FROM START OF IP/IPX HEADER	DATA OFFSET4 FROM START OF IP/IPX HEADER	DATA OFFSET4 FROM START OF IP/IPX HEADER

00000000000000000000000000000000

Fig.21a

FILTER MASK FORMAT:

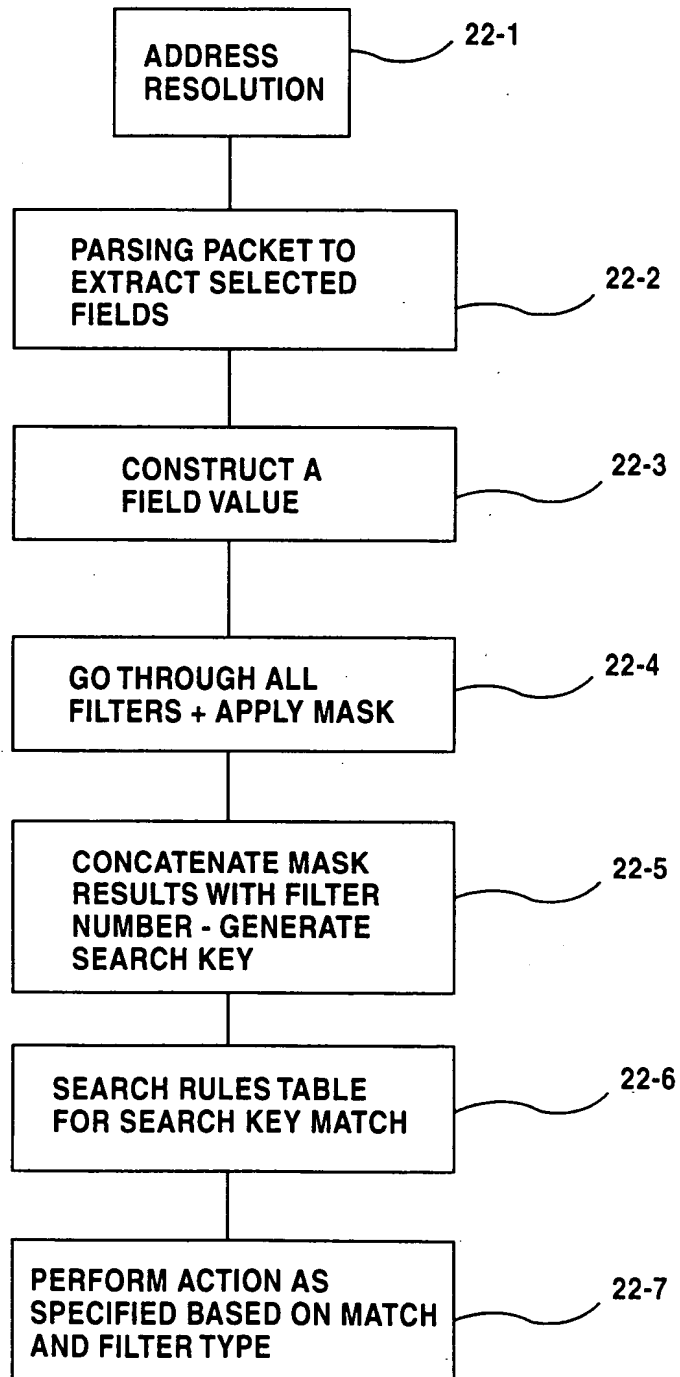
FILTER ENABLE (1b)	COUNTER (5b)	Rem PORT (1b)	OUTPUT MOD (5b)	OUTPUT PORT (6b)	TOS Prec (3b)	Diff Serv (6b)	802.1p PRIOR (3b)	
NMA ENB (1b)	NO MATCH ACTION (10b)	DATA OFFSET 4 (7b)	DATA OFFSET 3 (7b)	DATA OFFSET 2 (7b)	DATA OFFSET 1 (7b)	INGRESS PORT MASK (6b)	EGRESS MOD ID MASK (5b)	EGRESS PORT MASK (6b)
FIELD MASK								

Fig.21b

FIELD MASK FORMAT:

DEST MAC ADDR (6B)	SRC MAC ADDR (6B)	PROT TYPE (2B)	DEST SAP (1B)	SRC SAP (1B)	802.1 p PRIO (3b)	VLAN ID (12b)	TOS PREC (3b)	DIFF SERV (6b)	SRC IP ADDR (4B)	DEST IP ADDR (4B)	PROT IP (1B)	SRC PORT (2B)	DEST PORT (2B)
TCP CNTR FLAGS (1B)			DATA 1 (8B)		DATA 2 (8 B)		DATA 3 (8B)		DATA 4 (8B)				

**Fig.22**



0970533-11300



# Fig.24

30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0
SOURCE IP ADDRESS															
MULTICAST IP ADDRESS															
r	L3 PORT BITMAP														
L3 MODULE BITMAP															
UNUSED										TTL THRESHOLD			SOURCE PORT		

00000000 00000000 00000000 00000000



**Fig.25**

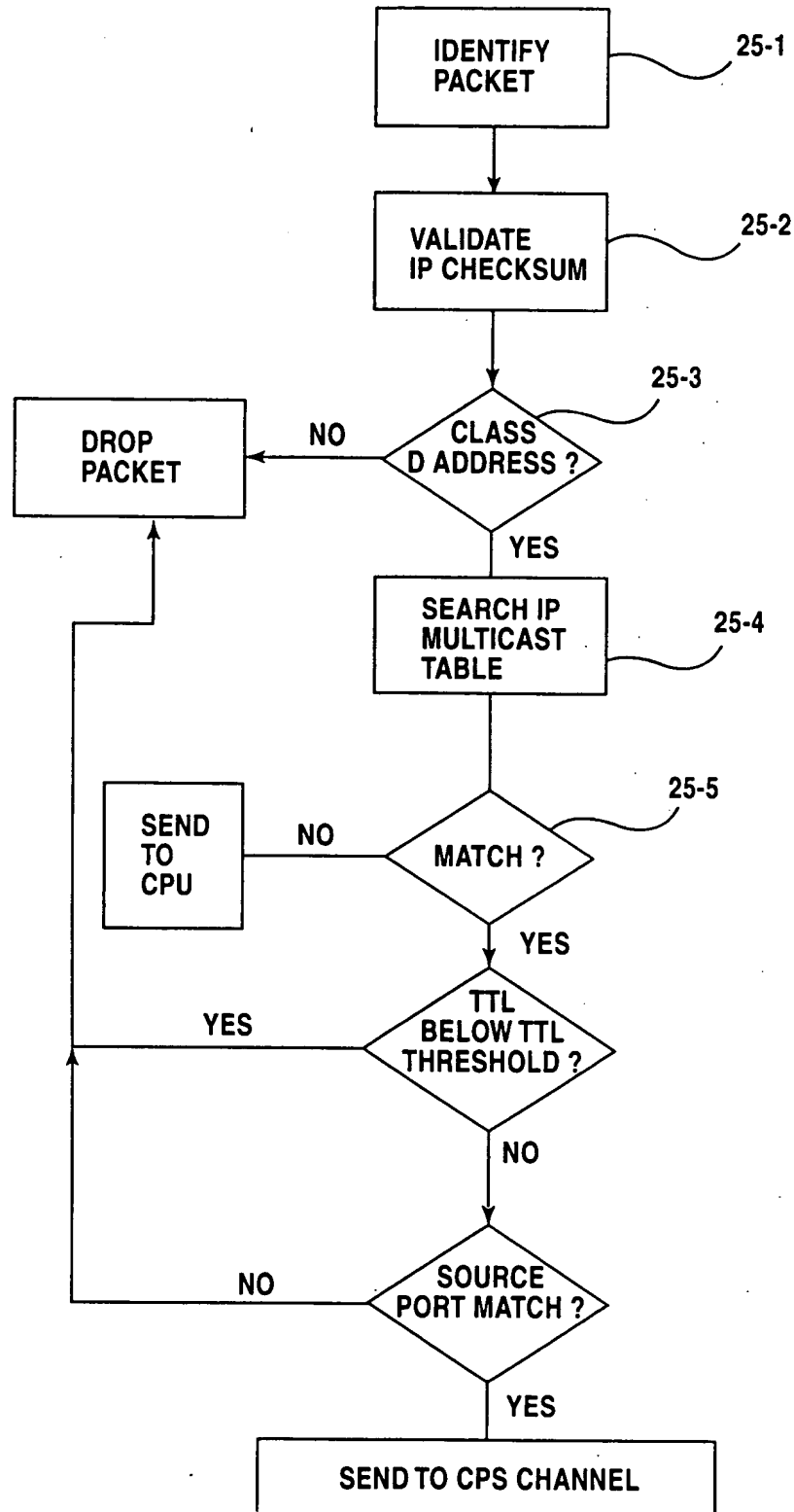


Fig.26

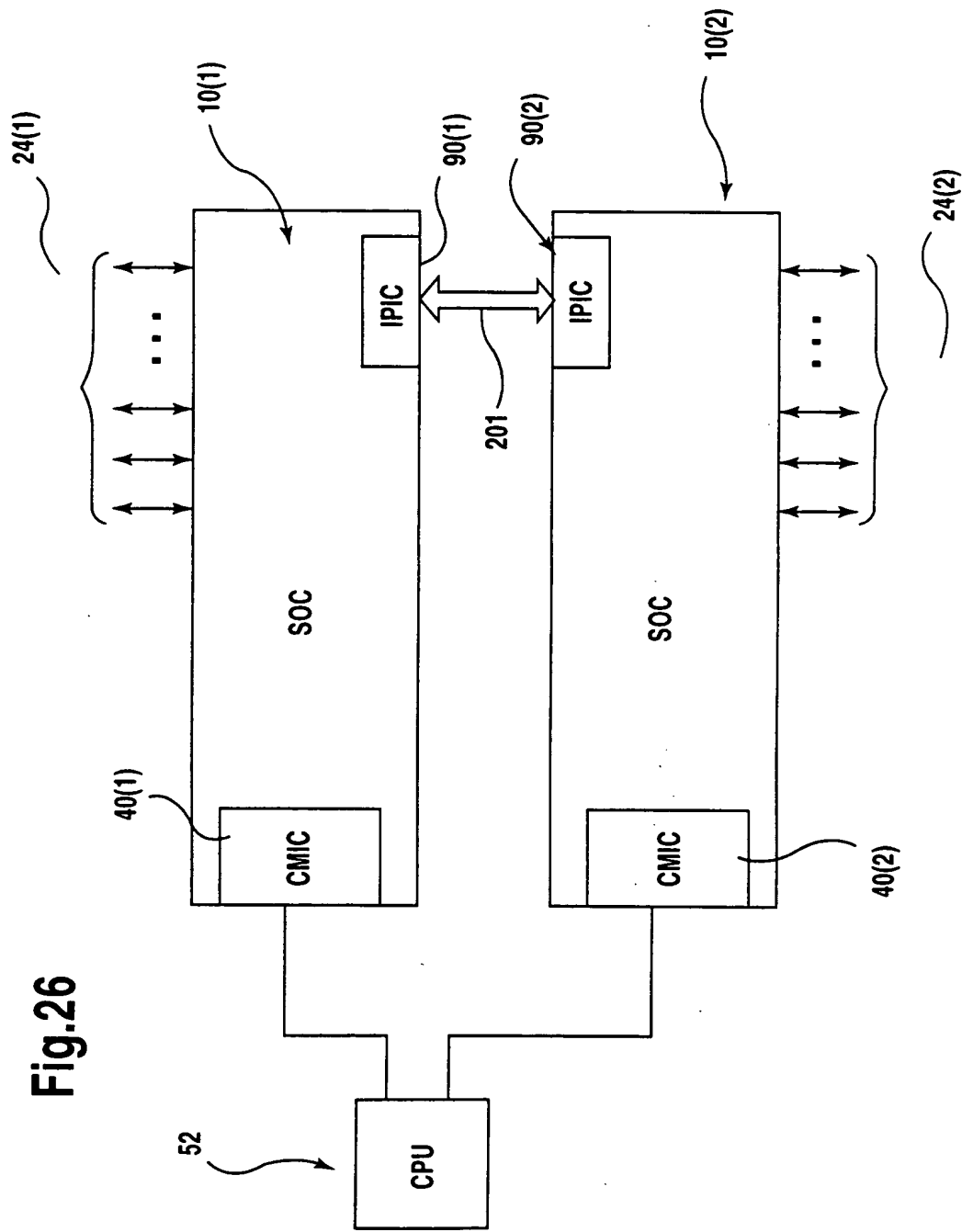


Fig.27a

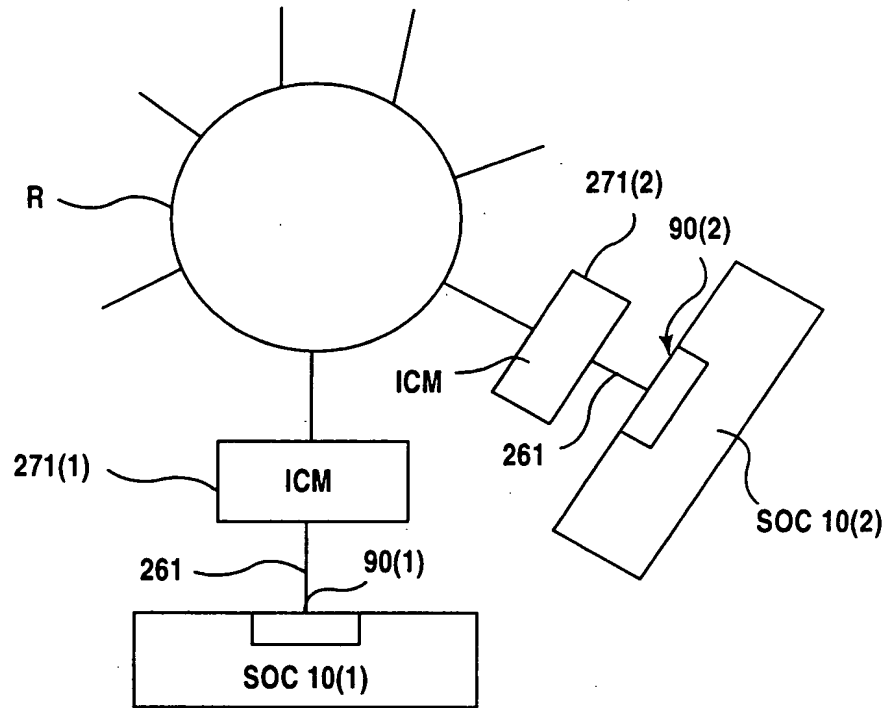


Fig.27b

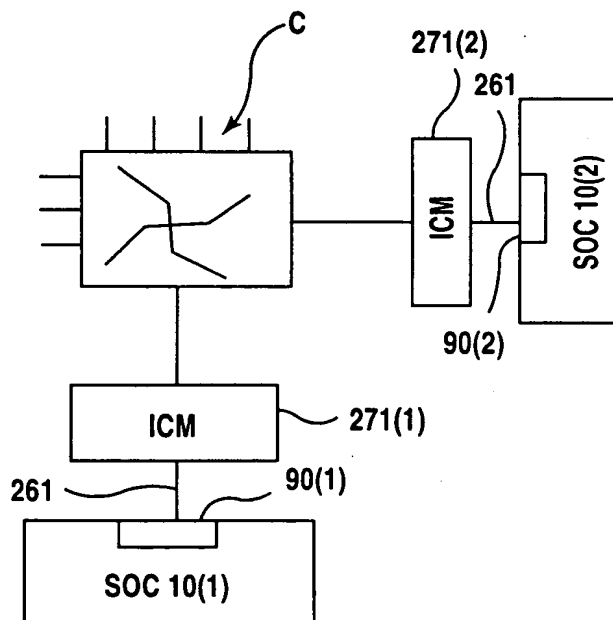
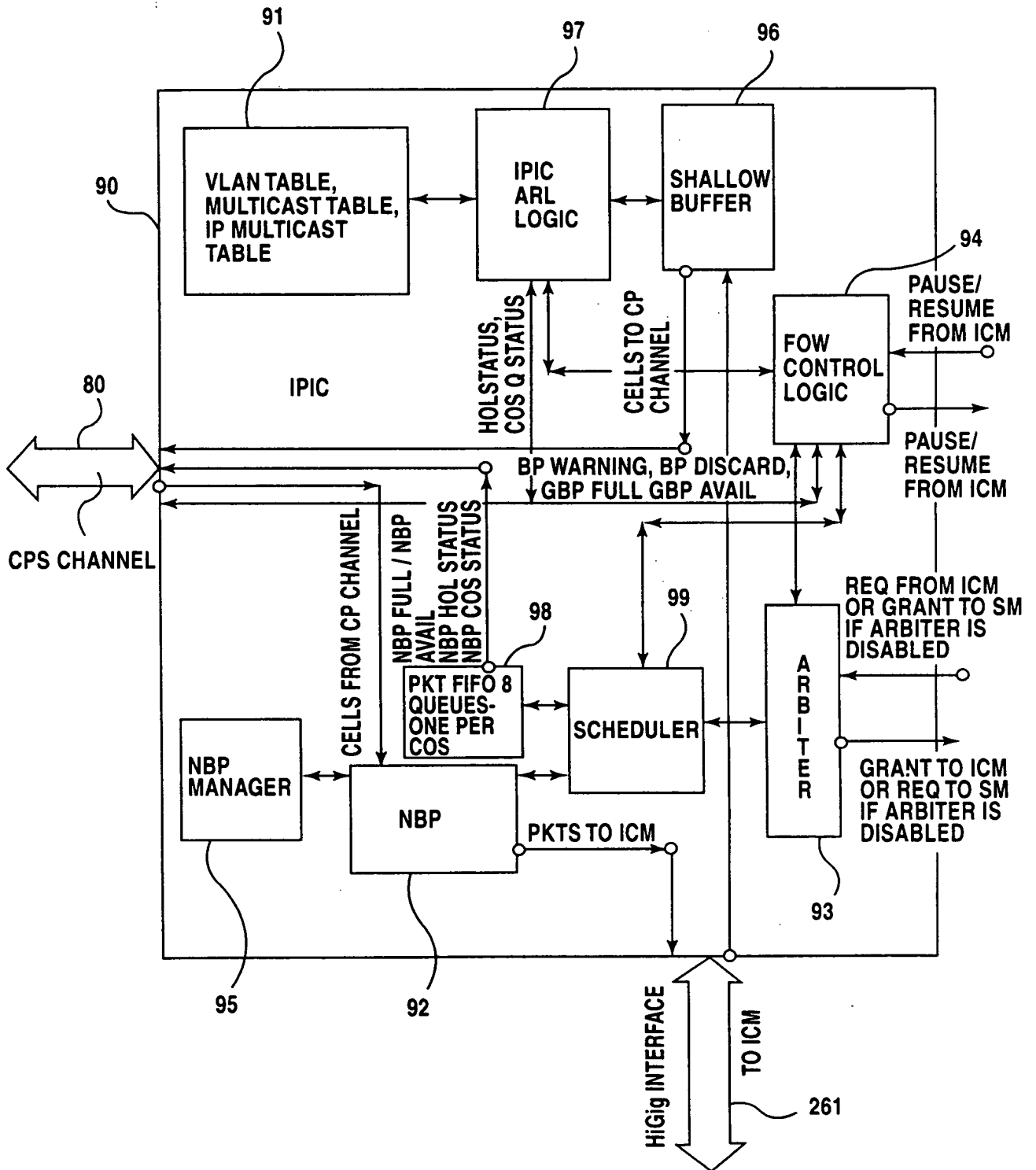
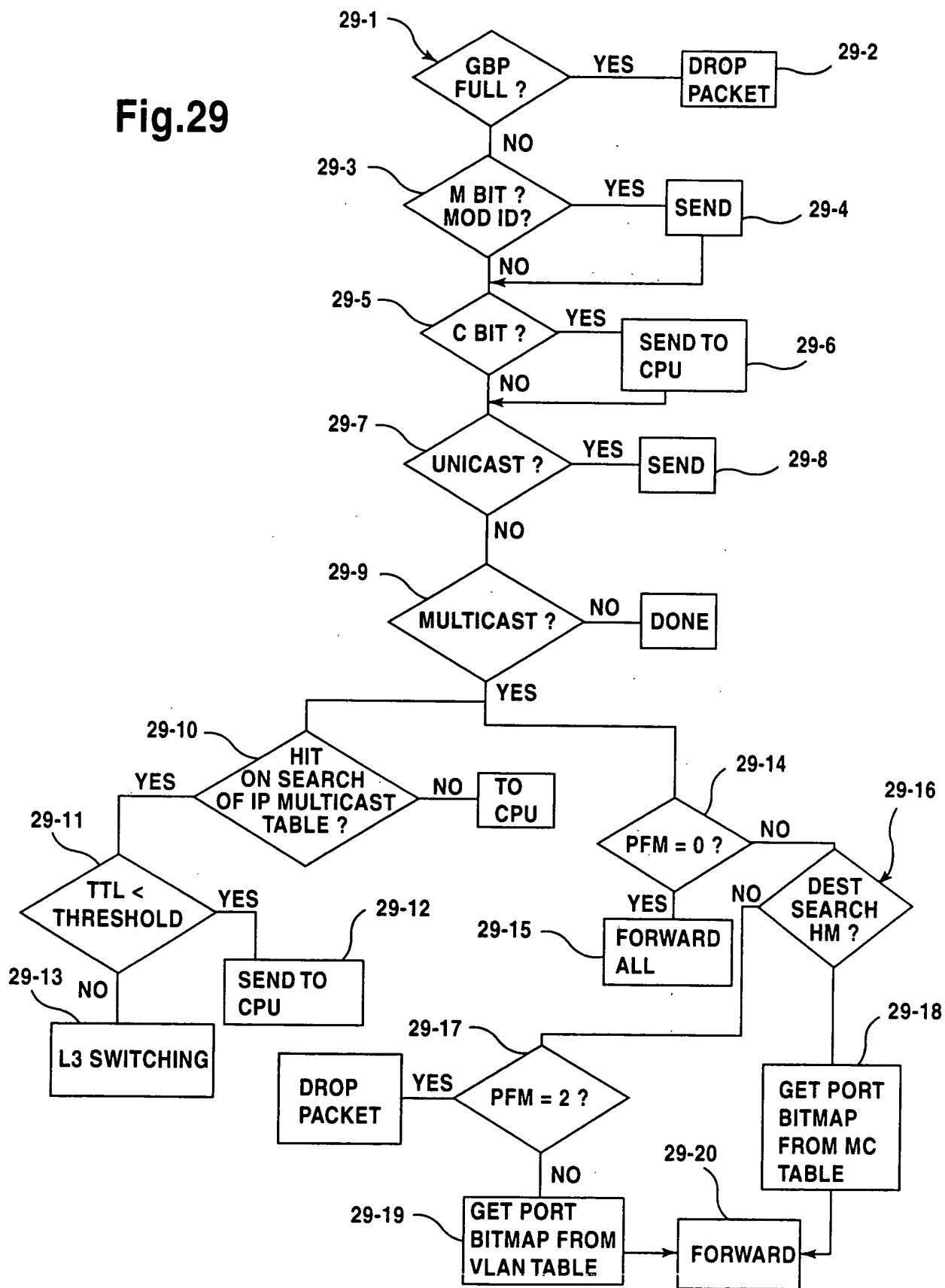


Fig.28



**Fig.29**

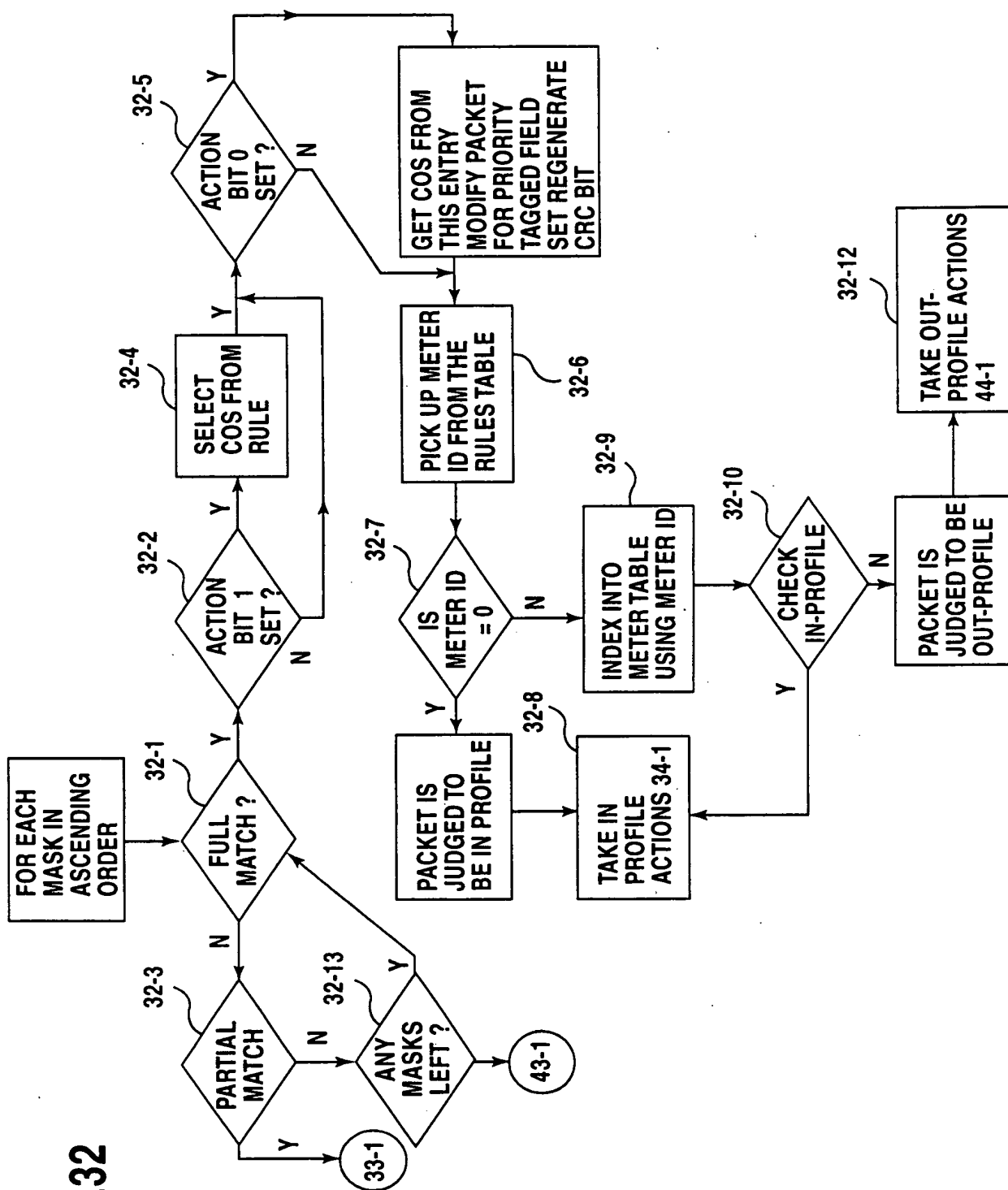


**Fig.30**

COS QUEUE (3b)	C P F	NCA (2b)	802.1p PRIORITY (3b)	RATE COUNTER (8b)	RATE COUNTER THRESHOLD (8b)	RATE DISCARD THRESHOLD ID (8b)	NEW CODE POINT (6b)	NEW COS QUEUE (3b)	NEW 802.1 PRIORITY (3b)
----------------------	-------------	-------------	----------------------------	-------------------------	--------------------------------------	---	------------------------------	-----------------------------	----------------------------------

**THE** **NEW** **YORK** **PUBLIC** **LIBRARY**

OFFSET FIELD	OFFSET 1	OFFSET 2	OFFSET 3	OFFSET 4
000	0-15	16-31	32-47	48-63
001	8-23	24-39	40-55	56-71
010	16-31	32-47	48-63	64-79
011	24-39	40-55	56-71	72-87
100	32-47	48-63	64-79	80-95
101	40-55	56-71	72-87	88-103
110	48-63	64-79	80-95	96-111
111	56-71	72-87	88-103	104-119













## Fig. 37

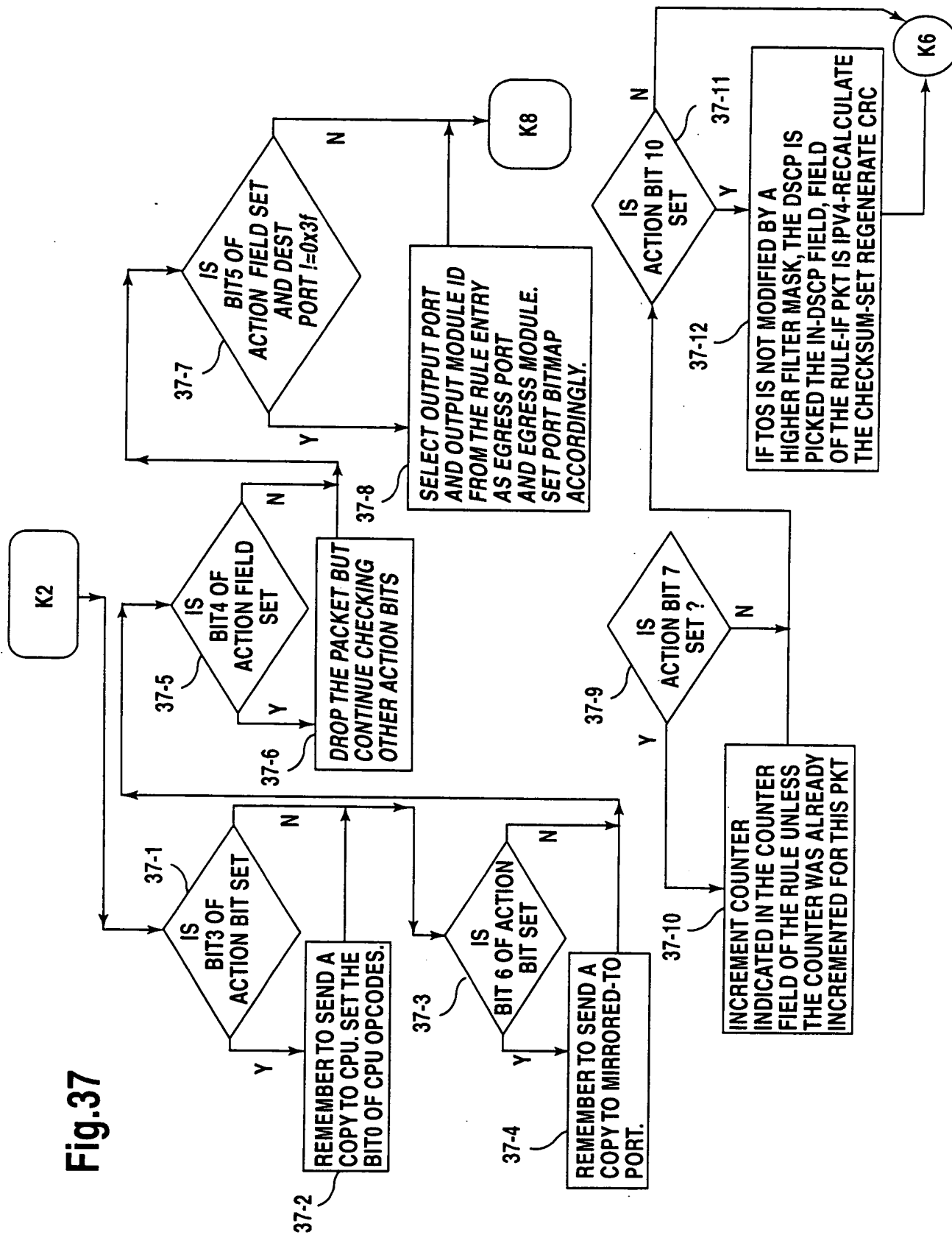
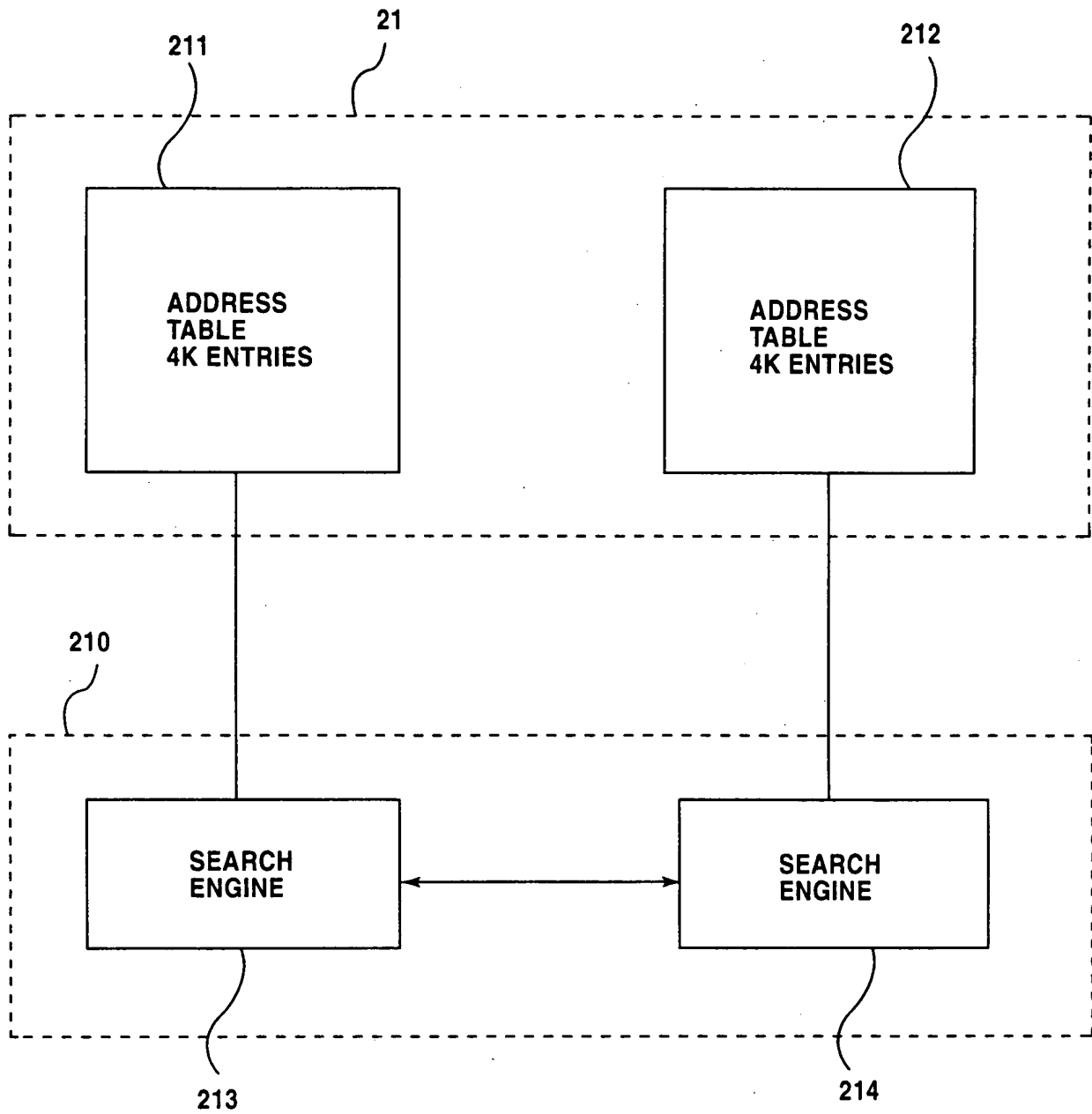




Fig.39







**Fig.41a**

ADDRESS	ENTRY
31	NN
30	MM
29	LL
28	KK
27	JJ
26	GH
25	CF
24	CC
23	BE
22	BD
21	BC
20	BA
19	AC
18	AB
17	AA
16	Y
15	X
14	V
13	T
12	S
11	R
10	Q
9	N
8	M
7	L
6	K
5	J
4	I
3	H
2	G
1	F
0	E

21

ADDRESS	ENTRY
30	MM
28	KK
26	GH
24	CC
22	BD
20	BA
18	AB
16	Y
14	V
12	S
10	Q
8	M
6	K
4	G
2	D
0	B

211

ADDRESS	ENTRY
31	NN
29	LL
27	JJ
25	CF
23	BE
21	BC
19	AC
17	AA
15	X
13	T
11	R
9	N
7	L
5	J
3	E
1	C

212

**Fig.41b**

Fig.42

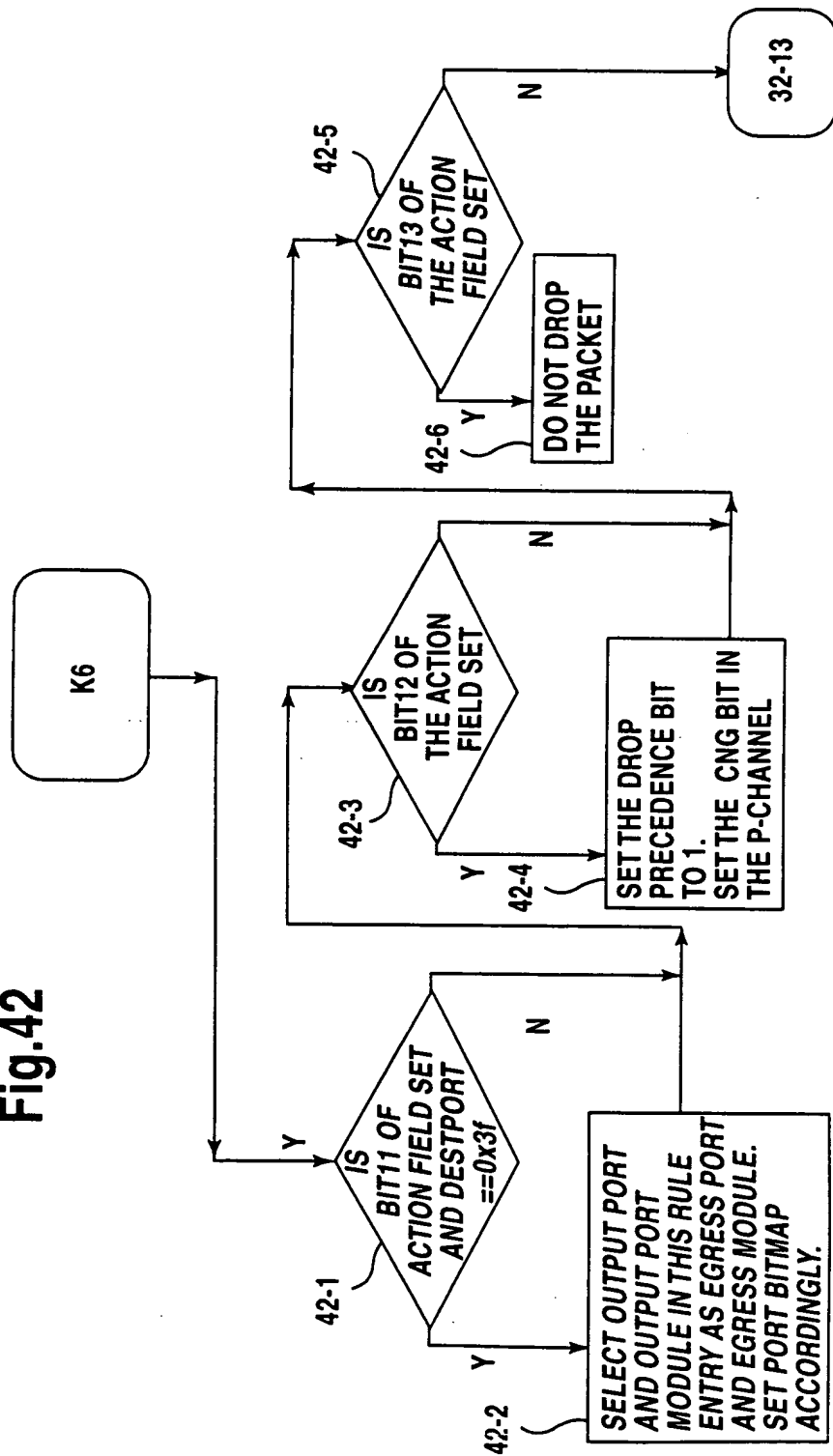


Fig.43

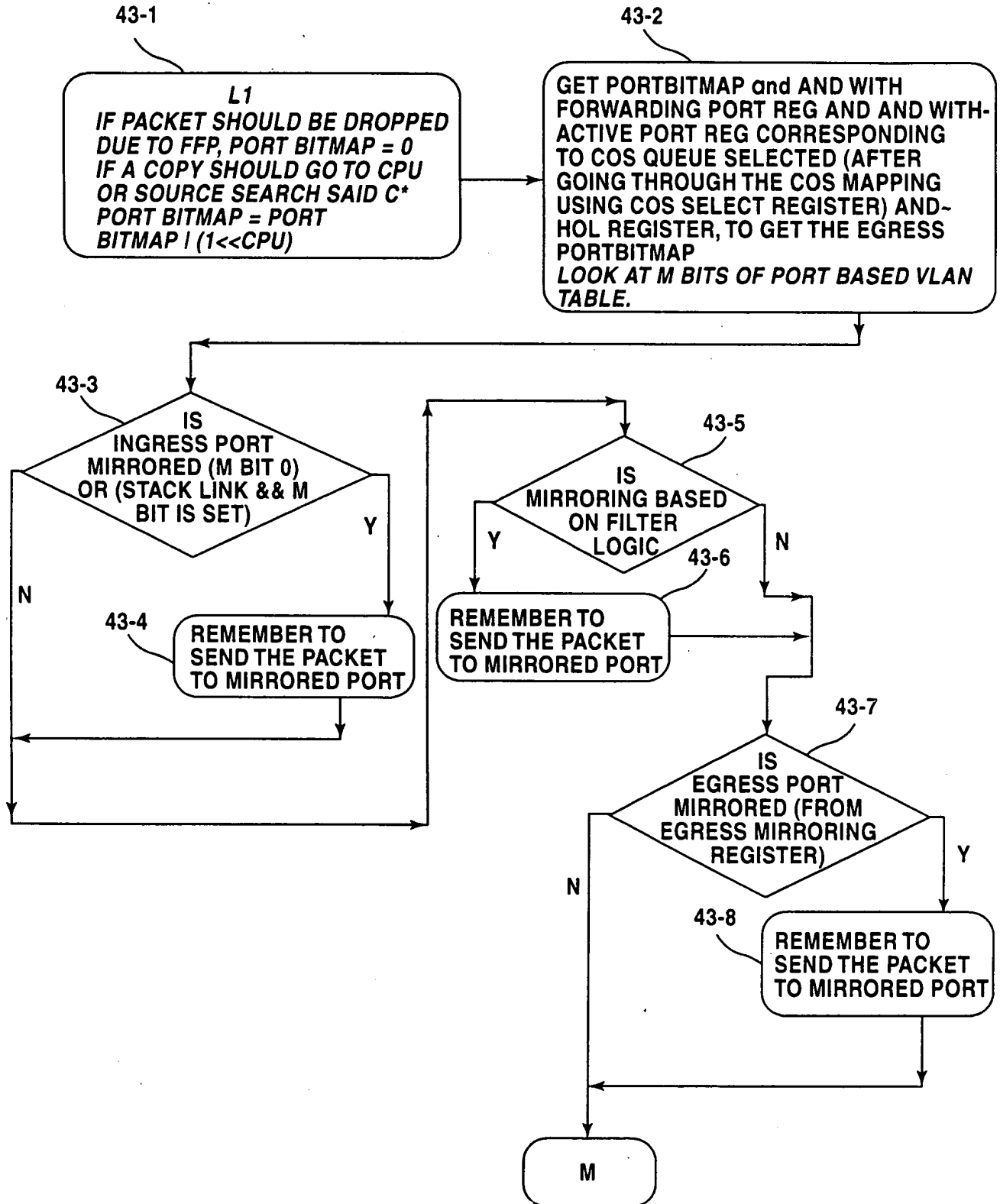
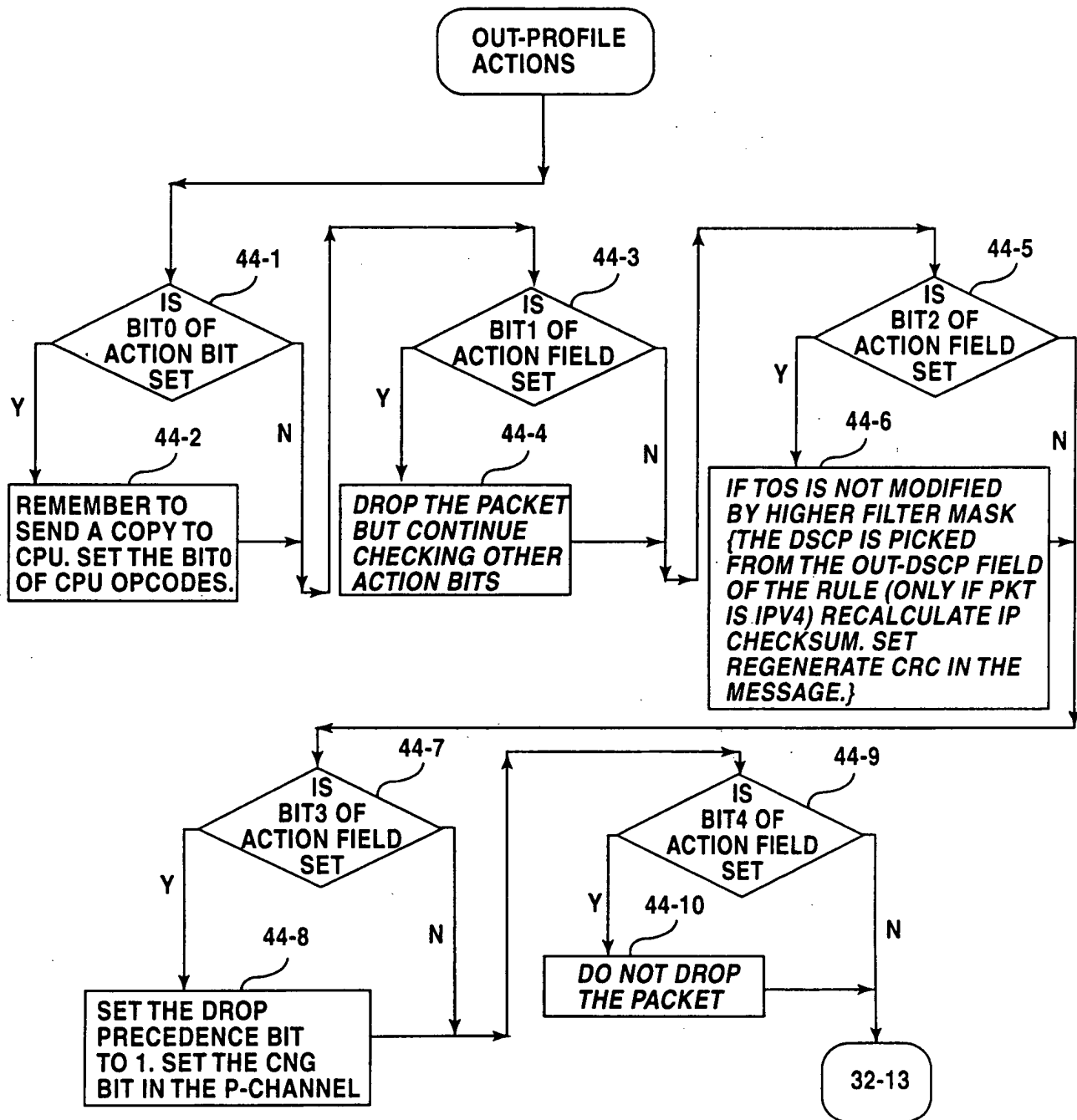
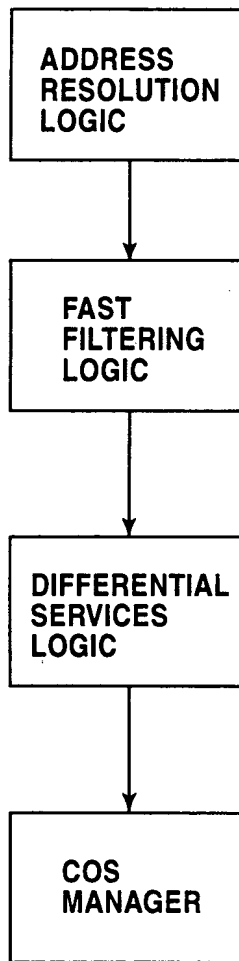


Fig.44



**Fig.45**



00E11F 2E560260

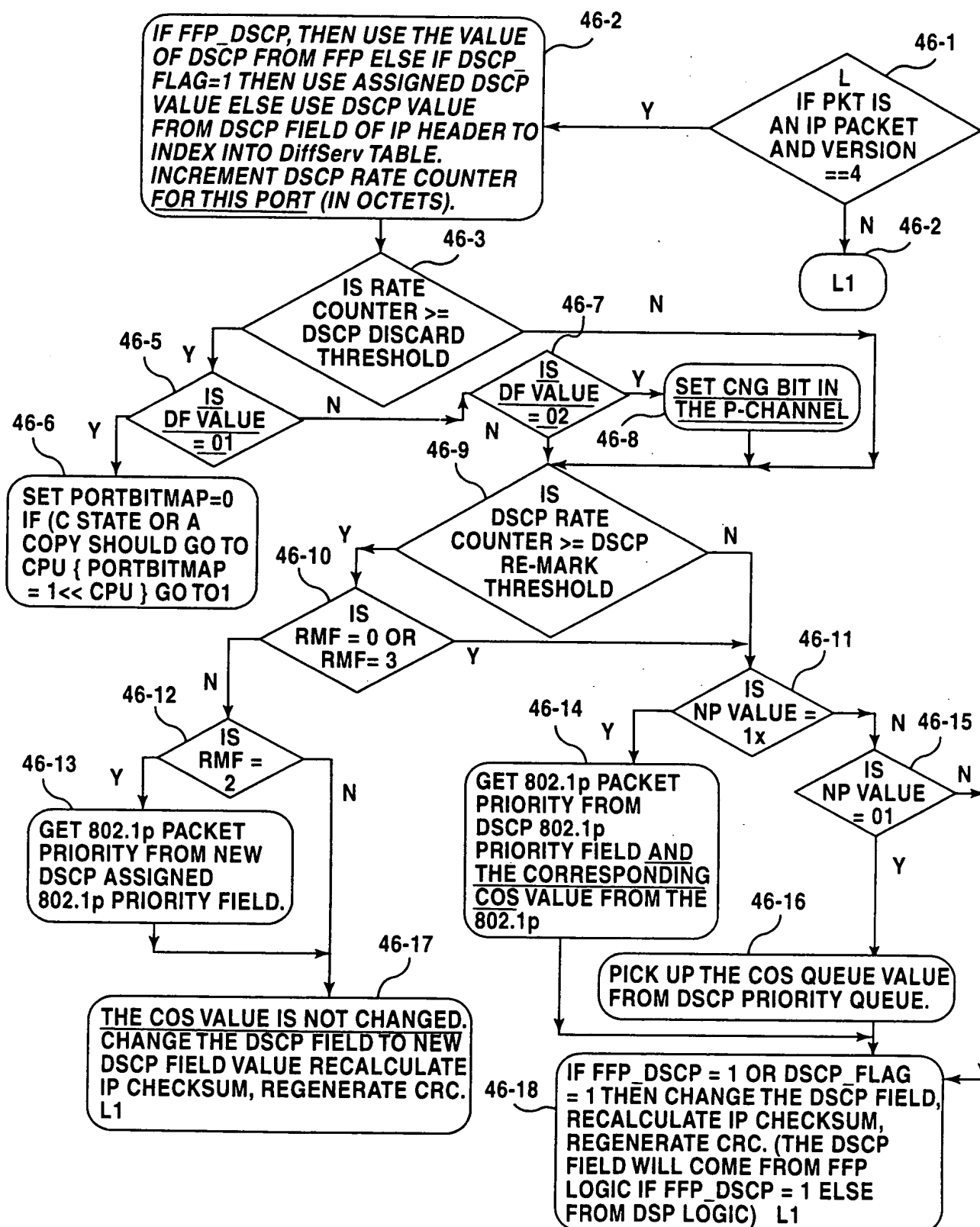
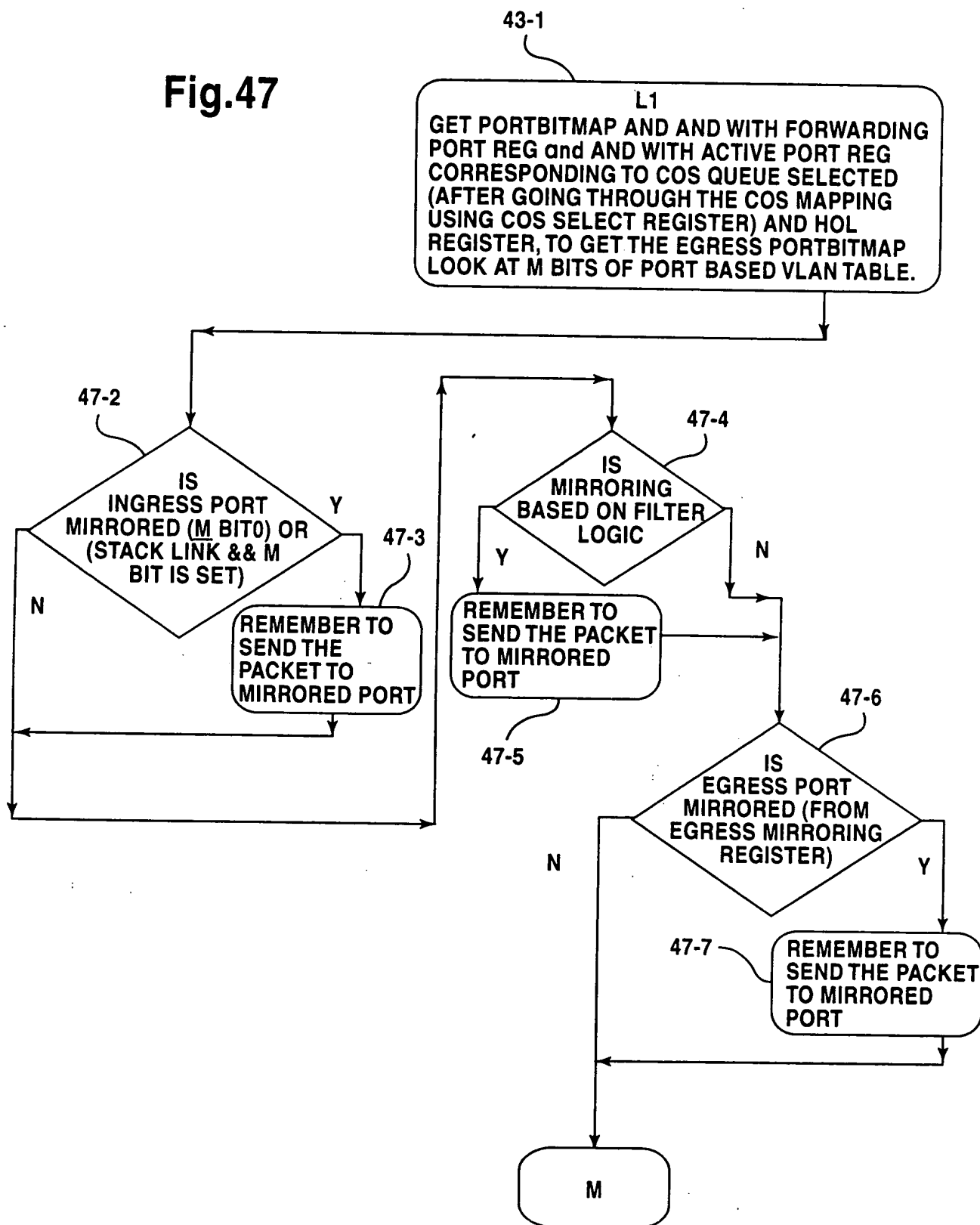
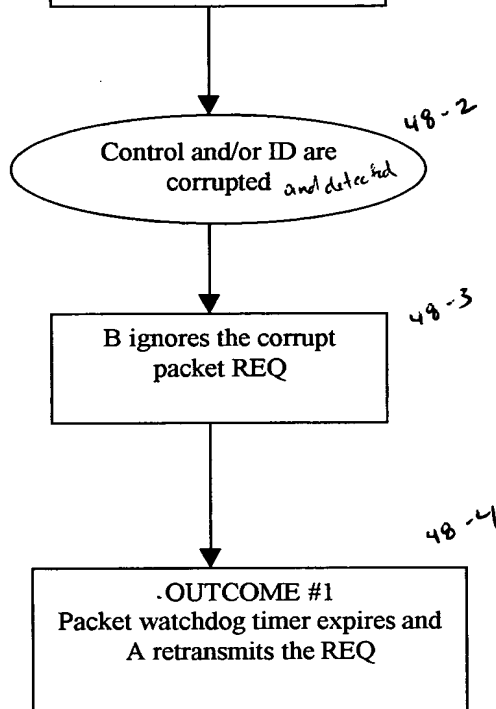
[illegible]

Fig.47



A transmits a packet request (REQ) with an ID = 0



**FIGURE 48**



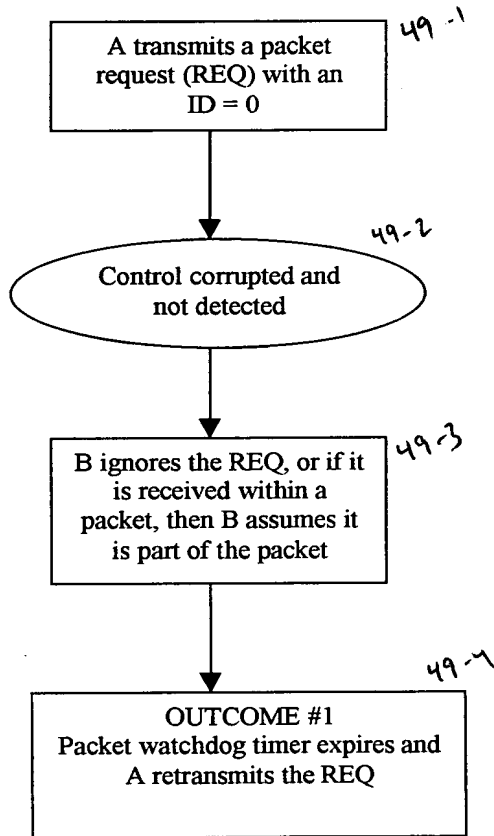


FIGURE 49

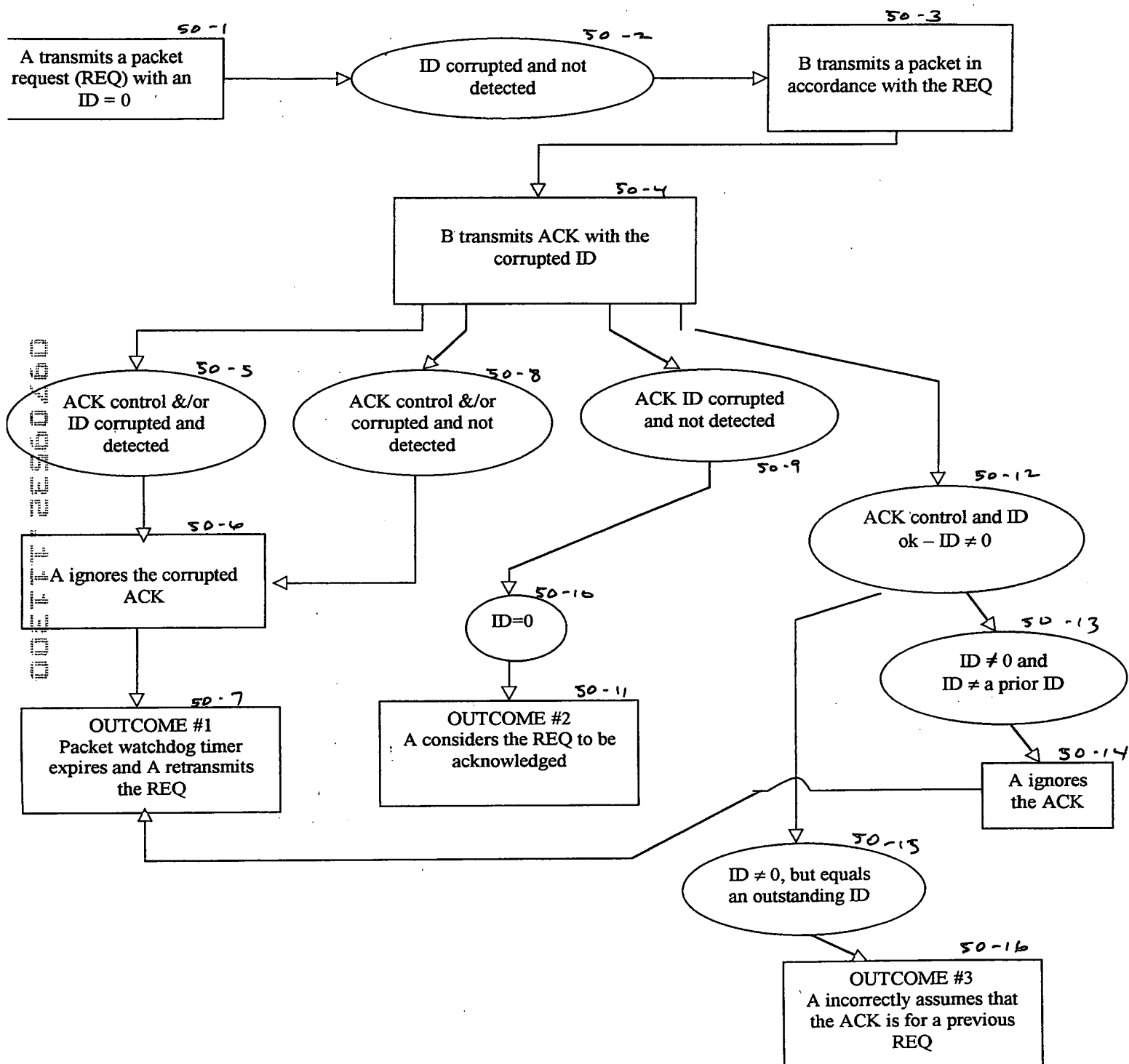


FIGURE 50

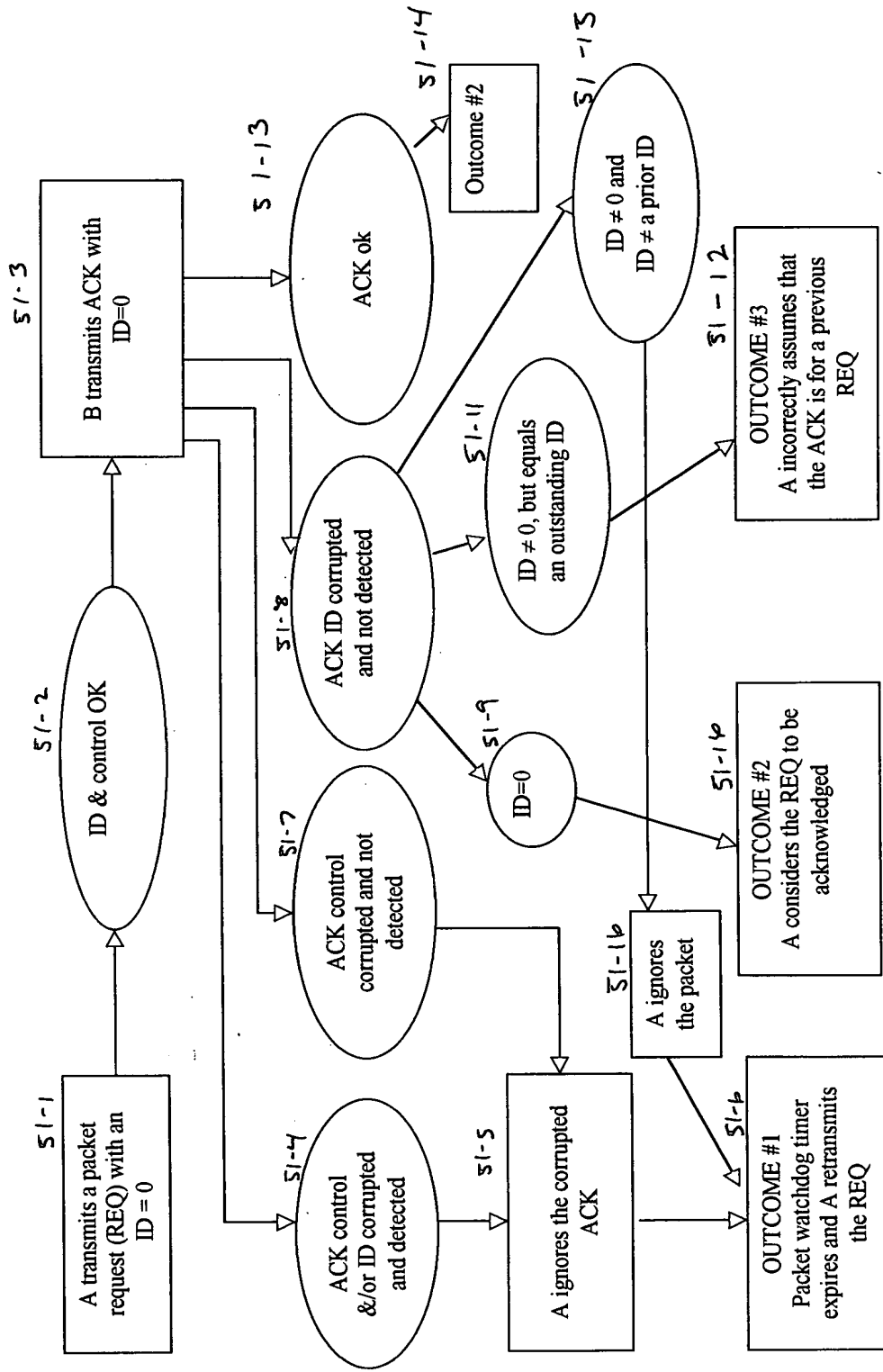


Figure 51